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THE

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FOR THE

Farm, Garden, and Household.

"Agriculture is the most Healthful, the most Useful, the most Noble Employment of Man."—WASHINGTON.

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☞ *The stars (*) in the following Index show where engravings occur. Articles referring directly or indirectly to Bees, Cattle, Insects, Manures, Trees, Weeds, etc., will be found indexed under these general heads.*

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AMERICAN AGRICULTURIST

FOR THE

Farm, Garden, and Household.

"AGRICULTURE IS THE MOST HEALTHFUL, MOST USEFUL, AND MOST NOBLE EMPLOYMENT OF MAN."—WASHINGTON.

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"SEVERE WEATHER."—FROM A PAINTING BY R. ANSDELL.—*Engraved for the American Agriculturist.*

The shepherds of the mountainous regions are liable to have their flocks exposed, both on the coming on of winter and in the spring, to storms of great severity accompanied by rain, snow and cold, and often by driving wind which allows no escape from cold or wet. Even so hardy an animal as the Highland sheep often suffers greatly. Separated from the flock, weighed down by their ice-loaded fleeces, weakened by lack of food, and chilled through and through, it is no wonder that the most vigorous sometimes give up in their struggle with the elements, and die. When the storm breaks away or a lull for a few hours comes, then is exercised the sagacity of that most intelligent of brutes, the shepherd dog. Every old country in the agriculture of which sheep form a prominent feature, has its own race or breed of shepherd dogs. Those used in mountainous regions resemble each other a good deal, because the same arduous duties are required of them. They must be intelligent, kind, hardy and docile, of good size, fleet, well coated, and enduring. The most remarkable instances of intelligence have been manifested by females. We are most familiar with the English and Scotch shepherd dogs. The latter, called the *Colly*, is the breed of the dog in the engraving. These, like other shepherd dogs, are from their birth familiar with sheep. They have the constant companionship of the shepherds and manifest the strongest attachment for their master, generally being entirely indifferent to other men. Their care of the flock is not a cultivated natural impulse, nor second nature, even after centuries of breeding, but simply a business to which they are trained and in which they find unlimited opportunities for the display of their wonderful sagacity, aided by remarkable powers of vision and scent, and probably also of hearing. Untrained they make affectionate, companionable dogs, quick to learn tricks, and to understand language addressed to them.

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Calendar for January.

Day of Month.	Day of Week.	Boston, N. England, N. York State, Michigan, Wisconsin, Iowa, and Oregon. Sun rises.	Sun sets.	Moon sets.	N. Y. City, Ct., Philadelphia, New Jersey, Penn., Ohio, Indiana, and Illinois. Sun rises.	Sun sets.	Moon sets.	Washington, Maryland, Virginia, Kentucky, Missouri, and California. Sun rises.	Sun sets.	Moon sets.
		H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.
1	S	7 30	4 38	4 36	7 25	4 43	4 49	7 19	4 49	4 46
2	S	7 30	4 39	5 34	7 25	4 44	5 30	7 19	4 50	5 41
3	M	7 30	4 40	6 36	7 25	4 45	6 40	7 19	4 51	6 45
4	T	7 30	4 41	7 39	7 25	4 46	7 42	7 19	4 52	7 46
5	W	7 30	4 42	8 41	7 25	4 47	8 41	7 19	4 52	8 47
6	T	7 29	4 43	9 41	7 25	4 48	9 43	7 19	4 53	9 45
7	F	7 29	4 44	10 41	7 25	4 49	10 42	7 19	4 54	10 43
8	S	7 29	4 45	11 38	7 24	4 50	11 38	7 19	4 55	11 38
9	S	7 29	4 46	morn	7 24	4 51	morn	7 19	4 56	morn
10	M	7 29	4 47	0 35	7 24	4 52	0 35	7 19	4 57	0 34
11	T	7 29	4 48	1 33	7 24	4 53	1 31	7 19	4 58	1 29
12	W	7 28	4 50	2 31	7 23	4 54	2 29	7 18	4 59	2 26
13	T	7 28	4 51	3 31	7 23	4 55	3 27	7 18	5 0	3 24
14	F	7 28	4 52	4 31	7 23	4 56	4 27	7 18	5 1	4 23
15	S	7 27	4 53	5 31	7 22	4 57	5 26	7 18	5 2	5 21
16	S	7 27	4 54	rises	7 22	4 59	rises	7 17	5 3	rises
17	M	7 26	4 55	5 14	7 21	5 0	5 19	7 17	5 5	5 23
18	T	7 26	4 56	6 22	7 21	5 1	6 26	7 16	5 6	6 30
19	W	7 25	4 58	7 32	7 21	5 2	7 35	7 16	5 7	7 38
20	T	7 24	4 59	8 43	7 20	5 3	8 45	7 15	5 8	8 47
21	F	7 24	6	9 55	7 19	5 4	9 56	7 15	5 9	9 56
22	S	7 23	1	11 5	7 18	5 5	11 5	7 14	5 10	11 5
23	S	7 22	3	morn	7 17	5 7	morn	7 14	5 11	morn
24	M	7 21	4	0 18	7 17	5 8	0 14	7 13	5 12	0 13
25	T	7 21	5	1 26	7 16	5 9	1 21	7 12	5 13	1 21
26	W	7 20	6	2 34	7 16	5 10	2 31	7 12	5 15	2 27
27	T	7 19	8	3 41	7 15	5 11	3 37	7 11	5 16	3 33
28	F	7 18	9	4 46	7 14	5 13	4 41	7 10	5 17	4 37
29	S	7 17	10	5 44	7 13	5 14	5 39	7 9	5 18	5 34
30	S	7 16	12	6 34	7 12	5 15	6 30	7 8	5 19	6 25
31	M	7 15	13	7 19	7 12	5 16	7 15	7 8	5 20	7 10

PHASES OF THE MOON.

MOON.		BOSTON.	N. YORK.	WASH'N.	CHA'STON	CHICAGO.
	D.	H. M.	H. M.	H. M.	H. M.	H. M.
New.....	1	7 22 ev.	7 10 ev.	6 58 ev.	6 46 ev.	6 16 ev.
1st Quart..	9	4 18 ev.	4 6 ev.	3 54 ev.	3 42 ev.	3 12 ev.
Full.....	17	10 1 m.	9 49 m.	9 37 m.	9 25 m.	8 55 m.
3d Quart...	24	5 39 m.	5 27 m.	5 15 m.	5 3 m.	4 33 m.
New.....	31	10 57 m.	10 45 m.	10 33 m.	10 21 m.	9 51 m.

AMERICAN AGRICULTURIST.

NEW YORK, JANUARY, 1870.

It was wise in the Ancients to begin their social year in January. The Jewish year begins in September; the Mohammedan in May; the Ecclesiastical at "Advent," about the first of December; and our National or Civil year on the 4th of July. At no time have farmers, gardeners, professional or business men so much leisure to wind up the affairs of the closing year, and to begin aright the new as at this season, when traffic is, in a measure, suspended, when the ground is frozen, when the hours of light are few, and the evenings are long. We are receiving the income from the harvest in one way or another, or know what to calculate upon, in a measure, at least; weeks must pass before the activity of field work presses us again, and we have time to prepare for a successful year. Success does not come unsought, at least not to farmers following their ordinary avocations. It must be won by well-studied plans, and thorough preparations, judiciously carried out. To plan and prepare is, therefore, the most important work for January. Perhaps we ought to make an exception to this statement in favor of that mental culture for which the winter offers such opportunities. Nothing is so important to a farmer, as a man, as to be well informed,—as a farmer, he may be tolerably successful, without education except in the routine and labor of his profession, but every year makes it harder for those farmers who depend exclusively on native wit and innate shrewdness, and easier for those who study farming, and follow their profession with all the aids they can get, with the printed experience of a thousand neighbors, the best thoughts of men of science, and the best implements and methods they can afford to get and learn, and can carry out to use.

Hints About Work.

We assume that the regular labors of the field are suspended by cold weather; if otherwise, and we occasionally have winter's when, even in Pennsylvania, plowing may be done in every month of the year, no hint from us will be needed to remind farmers that there are some kinds of properly called spring work, which may be done, greatly to the relief of the men and teams in March and April. Now and then, however, times occur when the ground is bare, and stones are loose, and these offer an opportunity not to be lost sight of, to pick up stones and lay them in heaps, or haul them off at once from the fields to where they may be used.

The Work-shop.—The winter affords time to work a good deal at repairing tools, making and mending articles, and if one has a room which may be warmed and lighted, and with a good work-bench, furnished with common carpenters' tools, a soldering iron, a little kit of saddlers' tools, some leather, rivets, etc., it will be found a very attractive place for the boys; and not only would there be a good deal of good work done, but good habits formed, and skill gained, worth a great many dollars more than an expensively fitted up work-shop would cost.

Frost and Snow.—Never delay path-making and road-breaking after every fall of snow. The work is much lighter, and it is better done. Never trust to mild nights, and leave the water standing in pumps or pipes. Sudden changes of weather, with accompanying damage, occur without warning.

Building may often be done by contract in winter cheaper than in warm weather, especially if the contracts be made in the autumn; but builders will give moderate figures for good work, if one can present well-made plans and specifications early in the new year, and give them time to do the finishing after the house is enclosed, and the roof on, when their other work does not press upon them.

Timber.—Cut and haul to the saw-mill. In selecting trees, take such as have nearly stopped growing, but are still sound and healthy. Such wood is quite as good as that which is growing fast, and stiffer. Young timber is elastic, old is stiff; that which has stopped growing, and has many dead limbs, is brash, though good for fuel.

Ice.—Those who have ice-houses should not neglect to fill them whenever sufficient thickness of ice forms to make it possible to handle it economically. At the lowest latitude where ice-houses are found, and where ice is usually gathered, it often happens that good ice can be obtained only for a very few days. Ice one inch thick may be very profitably handled, being dragged out upon a clean platform, running into the water, and from this shoveled into carts. It should be packed by pounding into as solid a mass as possible in the ice-house. An intermixture of a moderate quantity of pure, fresh-fallen snow is an advantage if it be well pounded. When thick ice can be obtained, chip off all the porous snow-ice, and pack only the clearest, filling the crevices with fine ice chipped from the top of each layer. Cut the cakes to fit.

Horses ought to have good cleaning and regular exercise. If there is nothing for them to do, give them a run of an hour or two in a well-fenced lot, one at a time—if there is any danger of their kicking each other—every fair day. Don't scrimp in bedding; you will lose nothing, but gain, in the less amount of food a horse will need if kept warm. Close stables must be well ventilated. Direct the blacksmith to put the best and toughest steel into the caulks, so welded on that they will not tear out. The caulks should be thick, so that they may be sharpened when necessary several times without the necessity of renewing the shoes.

Mares and Colts.—Brood mares are liable to injury from slipping on the ice, and they ought to be kept sharp-shod if used, and kept off from icy paths when exercised or led to water. Similar care must be had for colts in giving them exercise. The winter is a favorable season to break and train young horses. In all exercise for the purpose of training a horse, remember he is an animal of considerable powers of reason, of great natural caution, of excellent memory, and of almost uncontrollable curiosity, and work upon these faculties. The horse is never satisfied with his knowledge of a new and strange thing unless he *smells* and rubs it with his nose. This he must do voluntarily.

Oxen, if used upon snowy or icy roads, must be well shod, and kept sharp.

Cows.—Feed well, so as to keep them in good

condition, and rather gaining than falling off in flesh. Milk to within six weeks of calving before beginning to dry off. Should cows calve during this month, provide warm, well-littered box stalls. Cows with calf should have some grain—corn-meal, bran, or oil-meal. They do better, calve easier, have better calves, and give more and better milk.

Young Cattle.—Give young cattle all the corn-stalks and hay they want to eat, and with good shelter they will thrive. If lousy, wash them with a moderately strong solution of carbolic soap, following the directions accompanying the package.

Beeves should have warm quarters, where they will not be excited or disturbed by occurrences about them, and should be fed, if for the spring market, with all that they will eat of corn and oil-meal mixed, and with roots and hay, to give variety, or with other fattening feed. Quick fattening is the most profitable, and they need very little exercise, if any, so long as they have good appetites.

Sheep which are fed for slaughter need to be sorted, so that the stronger ones shall not get more grain than is their share, or than is good for them. Sheep are easily thrown "off their feed" by over-feeding. Give turnips and oil-cake with corn, and occasionally hemlock boughs, if these can be easily got; all sheep are fond of them, and they are a healthy variation of their diet. Examine all sheep for ticks, lice, and scab, and, if necessary, apply carbolic soap in the form of strong suds, thrown into the parted fleece through a quill in the cork of a bottle; it will keep the vermin in check.

Swine.—The high price of pork will tempt farmers to get their store pigs in condition for slaughter. This is not worth while unless you have abundant provision made for a large stock of young ones. Sows will eat good clover hay and corn-stalks, if sweet, and may be kept in good order on comparatively little feed besides.

Poultry.—Eggs are high. The flesh of poultry brings a fair price except when a glutted market is followed by a thaw at this season. To secure eggs in winter, fowls must have light quarters, where they may spend not only the night but severe days in comfort, protected from both cold and wind. Light barn-cellars or enclosed "hovels," where manure is thrown from the stables, are places which almost every farmer can arrange. Feed well; watch for roup, or any such disease; remove wheezing fowls or those with colds, and give them tonic and stimulating diet. Give fowls soft feed—mashed potatoes with meal or wheat screenings, swelled oats, or cracked corn, well soaked, during the day, mingling it with cayenne pepper now and then, and feeding corn, barley, buckwheat, or other hard feed at evening. Water ought not to freeze in the hen-house except on the severest nights, and the house, roosts and nest-boxes should be kept as clean as in the spring or summer. Dry earth is useful as a deodorizer.

Work in the Horticultural Departments.

As we commence our monthly notes for another year, it is with the accompaniments of a rousing fire within, and the music of sleigh-bells without. It is now the time for fireside horticulture. We do not now allude to window plants, but to the horticulturist himself. Out-door work is, for the most part, "laid by," and now is the time when the cultivator himself needs to have his brain turned over and fertilized. It is necessary to change ideas as well as seed, and many a sound old stock of experience would bear all the better fruit if it could be engrafted with some new notion. Let the journals which were put aside half read, at the season when work was pressing, be brought out for thorough perusal. See if you have the best and latest work on the branch you are most interested in. There are but few books upon horticulture so stupid that a wide-awake man cannot get a good idea from them. There are but few cultivators but have some experiences that are worth learning—and what better way is there in which to learn what is going on in the world than to begin with your neighbor and compare notes with him? So with reading, visiting, and planning, the days which are too rigorous for out-door work, may be made among the most profitable of the year.

Orchard and Nursery.

Animals must be kept out of young orchards. Tight fences and securely closed gates will do much to exclude domestic animals, including man.

Mice and Rabbits are the most troublesome among the wild animals. Tramp down the light snows around the trunks of the trees. Sprinkle blood near the base of each tree, to keep off rabbits. See item in "Basket" on the use of corn-stalks for the purpose.

Cions can be cut if the trees are not frozen; mark, and store in sawdust or moss in a cool cellar.

Pruning.—Though winter pruning is objected to by good authorities, if we had an old orchard that needed treatment, we should go at it in winter when there is plenty of time. Painting over large wounds, or covering them with melted grafting wax will prevent injury from rotting. If trees are properly shaped when young, it will seldom be necessary to do much pruning.

Insects.—One of the worst enemies of the orchardist is the Tent-caterpillar, but it is, fortunately, one of the easiest to keep in check. The eggs may now be seen near the ends of the twigs, glued in a broad band-like cluster. Remove the eggs and there will be no caterpillars, as another crop will not be laid until next summer. A pole pruning implement of some kind is convenient for this.

Manure may be spread upon the orchard. We sometimes see trees manured by a heap placed directly around the trunk, where, if not a positive injury, it is of no use. Spread it evenly over the surface.

Fruit Garden.

Those who have only a limited space must plant their fruits and vegetables as they best can; but where circumstances will admit of it, by all means have a separate garden for small fruits and dwarf and other trees of small growth. It is impossible to grow vegetables properly in the close neighborhood of trees and large shrubs; besides this, the trees and shrubs are likely to suffer for the want of proper nutriment. Select a well-sheltered spot, with good deep soil; drain if necessary, and set it apart as a fruit garden. Strawberries, raspberries, currants, gooseberries, grapes, pears, etc., can be produced in abundant supply. Were small fruits in abundance, there would be fewer discussions of the question, "Why do boys leave the farm?"

A mild spell will allow of the pruning of such grape-vines and gooseberry and currant bushes as were left at the regular autumn pruning.

Kitchen Garden.

At the North we can do but little this month, except when vegetables are forced under glass. In Southern States the hardy vegetables may be sown whenever the soil is in good condition, and the temperature averages about 45°. The beet, carrot, parsnip, parsley, cauliflower, radish, turnip, onion, leek, cress, spinach, cabbage, etc., are hardy.

Seeds.—If the seed be poor in quality, or not true to its kind, it is worse than useless. Look over the stock on hand, and reject all about the identity which there is any doubt. The vitality is easily tried by planting a given number in a box of earth, and keeping in a warm room until they germinate. If three-fourths come up, the seed may be considered good. Decide early what seeds are wanted, and order. Stick to tested kinds for the main crop, and invest in novelties for experiment only.

Manure.—The heaps should be turned over when the steam issues copiously. Cart manure to those points where it will be handy for use.

Hot-beds are to be prepared for. Sashes may need repairs in the way of painting and glazing. In some parts of the South they may be put in operation. The safest rule for all latitudes is to start the hot-bed six weeks before the time at which the plants can be set out with safety.

Straw Mats will be needed to cover the glass of the hot-beds during cool nights. We have frequently given directions for making them.

Cold-Frames.—If the snow covers them while the plants are frozen it need not be removed, but if the weather is mild when the fall takes place, it should be swept off. Give air every mild day, and endeavor to keep the plants as dormant as possible.

Flower Garden and Lawn.

Many plans for the improvement of places will be formed. If one has abundant means, and but little knowledge of such matters, it will be safest for him to employ some landscape-gardener of acknowledged taste to lay out his grounds. The great mass of people are, however, obliged to both plan and execute themselves. To such our advice is, do not attempt too much in the way of adornment at once. Do not copy the plans for expensive places which will be difficult to carry out, and which, if laid out, are not likely to be kept in order. Make a plan of the place as it is, and see what can be done to improve it, and at the same time retain as many of its present features as are desirable. Houses are generally set too near the road, which much restricts the space in front, and this space is generally divided by a path directly from the road to the front door. It is often the case that a side entrance from the road can be so arranged as to avoid breaking up the space directly in front of the house, and thus a lawn of moderate dimensions can be had. A smooth, level lawn is the first thing to be provided for. Make only such paths as are necessary, and if pleasing curves can be given to them, it is better than to have them straight. Shrubs, trees, and flower beds are to be provided for, and for these no definite directions can be given. A common mistake is to so surround the house with trees that distant views are quite shut out. A little judicious cutting away will often open a beautiful landscape to view. All such plans should be made long in advance of the working season, and be well considered in all their relations before the work of laying out is commenced.

Plants in pits, cold-frames, and cellars, should be looked to, and aired when the weather will allow. Plants thus stored will seldom need water, but should they become very dry, give a small quantity.

Rustic Work will afford interesting employment for those who have some taste and mechanical skill. Seats, flower stands, and the like, can be made out of very unpromising material. Cedar, Laurel, the Wild Grape, and others, afford available stuff for the purpose.

Stakes, Labels, and all garden conveniences, should be prepared in advance in abundant supply.

Green-house and Window Plants.

The temperature of the green-house, where plants are expected to grow and flower, should reach 60 or 65° in the daytime, and may sink 10 or 15° lower at night. If plants are only stored for the winter away from frost, then the night temperature may go down to within a few degrees of freezing.

Ventilation is to be given whenever it can be done without injury by cold. Plants in rooms suffer greatly for the want of fresh air, and the success with plants in modern, close-built houses, is much more rare than it used to be in less carefully closed structures. In providing for a change of air, sudden chilling of the plants must be avoided.

Dust is one of the great drawbacks to the health of house plants. The table on which the plants stand may be so arranged that wires or rods, to support a cloth, may be attached to it, and thus provide a dust protector while sweeping is being done. Shower the plants as often as practicable.

Insects.—The Green-fly, or Aphis, and the Red-spider are the principal insects that infest house plants. The first is to be treated to abundant smoking with tobacco, and the other will soon be rid of if the foliage is thoroughly wetted every day.

Water only when the earth shows signs of dryness. More plants are injured by over watering than by too little water.

Bulbs will now be coming forward. Give plenty of light. Cut away the flowers as soon as they fade

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DID IT PAY?

The other day we sent to one gentleman in Ohio: a beautiful $100 *Lady's Gold Watch*, a *Splendid Tea Set* of six pieces, a *Great Dictionary*, and a *Breach-Loading Pocket Rifle*—all as a present in return for 274 subscribers for 1870 which he had gathered in a brief time. Did it *Pay* him? Whether or not it paid us is our look out. We are doing such things all the time, and shall keep on doing so.* Will it pay those who subscribed $1.50 each to have this journal before them all the year? They thought so, and we shall take good care that it DOES.

This journal clashes with nothing else. It is all original and valuable to every person in City, Village and Country—NORTH, SOUTH, EAST and WEST—yes, EVERYWHERE. An intelligent Louisiana gentleman called to see if we could not get up an edition for the far *South*, leaving out some articles and inserting others on Southern topics. But after looking through several back numbers he could not find anything he would omit. We'll try and get in more special information for peculiar Southern crops, and modes of cultivation, as needed.

But the above is only one case. Splendid Premiums are going out daily to all parts of this country, and to other lands. There are in this country **27,107** Post-Offices, and wherever there are people enough for a Post-Office, there are enough to make up a large or small Premium Club—people, too, who would be benefited far more than its cost. It only needs some enterprising person to show and explain the paper, to get the names, and receive the premium free. Suppose YOU do it, reader.

Lack of money is a standard excuse from those asked to subscribe. But the price of one egg or two a week, produced or saved, will pay for the paper. Less than a pound of meat per *month*, or a pound of sugar, saved or economized, will do the same, while the household hints will help to economize many pounds, and will give better and more healthful food at diminished cost. A cheap cigar saved weekly will pay for the paper, while the hints about culture, etc., will secure better crops, by many dollars in value.

Reader, YOU can get a good premium for a little work. Try it. You may not get a large one at first, but you can "break ground" this year, and every copy now introduced will open the way for a great increase next year.

***EXPLANATION.**—Paper, press-work, and mailing, cost about $1 for each subscriber. 20,000 circulation (a very large one) leaves only $5000 for office, editing, engravings, etc., if subscribers average $1.25 each, including clubs. OUR 160,000 to 200,000 circulation leaves us $40,000 to $50,000 for collecting information, engravings, etc, and for *increasing the size of the paper as we have done*. We spend *all* the subscription money *on the paper*, and many thousand dollars more. The large circulation induces good advertisers to pay us enough to give the premiums, and have our profits left. More subscribers give us more advertising money, and thus we can give more premiums, and that gets more subscribers; and so we go on, and every body is benefited. All expenses of getting up and carrying on the Journal, (aside from paper, press-work, and mailing,) are not greater for half a million, than for half a thousand subscribers; so the larger the circulation, the more we can give for the money.

YOU CAN GET:

A Good Watch—Free of Cost—a genuine $40.00 American Waltham Watch, with heavy 3-ounce Hunting-case—a capital time-piece that will last through life, by sending 50 subscribers for the *American Agriculturist* at $1.50 each, or 150 at $1 each. (See No. 64 in Premium list, next page.)

OR—: A Lady's Gold Watch Free—a splendid article of Waltham make, sold usually for **$100** or more, and beautiful as a present to *any* Lady, by sending 110 subscribers at the regular price of $1.50 a year. Others have done so.

OR—: A Great Dictionary Free—the best in the world—containing **1854** great 3-column pages, with many hundred engravings, and giving every word in our language, correctly divided and spelled, with much information, by sending only 18 subscribers at $1.50 each, or 58 at $1 each!

OR—: A Sewing Machine Free—a first-rate one, your choice of three kinds; the best wife-saver, health-saver, money-saver, board-saver—much wanted in *every* house, by sending 60 to 70 subscribers (see table) at $1.50 each; or 240 to 275 at $1 each—easily obtained in most neighborhoods.

Or—: Good Seeds Free—forty varieties of first-rate *garden* seed, enough for almost any garden, (or, **100** kinds of beautiful *flower* seeds) delivered to you free: Only 13 subscribers at $1.50 each, or 37 at $1 each, will bring the seeds.

OR—: Splendid Breeding Sheep Free—either Cotswold or Southdowns, thoroughbred, raised by the best breeders. These sheep will multiply and diffuse their excellent qualities very rapidly, and one or more of them should be introduced into every neighborhood raising sheep: A club of 100 to 210 subscribers will secure one of them free! (See Nos. 13 to 20 in Table of Premiums.)

OR—: The newest and best Potato Free—two pounds of "Bresee's King of the Earlies," which is promised to eclipse even the Early Rose! Two pounds of these will soon multiply to a large stock. Only 5 subscribers will bring you a post-paid 2-lb. parcel of these new potatoes.

OR—: The best Pigs and Poultry Free—the best home-bred, and imported specimens; warranted pure by the reliable breeders who supply them for these premiums. Clubs of subscribers, numbering 22 to 66 names, will secure these animals without charge, and they are *worth* securing! (See No. 21 to 28 in Premium Table.)

Or—: A Washing Machine Free—the best one yet made: Send 21 subscribers at $1.50 each, or 70 at $1 each. Multitudes have secured this.

OR—: A $500 to $700 Shorthorn Bull Free—a superb, thorough-bred animal, from Jas. O. Sheldon's Herd, the finest one in the world—an animal that will soon increase the value of the stock in a neighborhood to the amount of many thousands of dollars. Let the farmers of any neighborhood combine and raise 425 to 580 subscribers, and own the bull in common: Or one person may raise the Club and he will soon derive a fine income from the animal. (See Premiums 1 to 3.)

OR—: An Ayrshire Bull Free—a fine thorough-bred animal raised by Wm. Birnie, which will soon show marked results in the improvement of the stock in a neighborhood: Send 120 to 210 subscribers at $1.50, all of which may be easily gathered.

OR—: The Best Clothes Wringer Free—one of the most valuable Housekeepers' Helps ever invented—one which will repay its cost every few weeks, and keep on doing so—both in saving labor and saving garments: Only 18 subscribers are needed to get this Clothes wringer free!

OR—: A Melodeon Free—one of the best made in the world, one of long-proved excellence—a delightful thing to have in the house, in the school-room, and in the church where an organ can not be afforded: Send 78 or 138 subscribers. (See Nos. 60, 61, in Table of Premiums, next page.)

OR—: A Superb Tea Set Free—six pieces, of splendid pattern, real substantial, durable double silver-plated,—not dressed up silver-washed stuff: Only 66 subscribers will secure this free!

OR—: An Alderney or Devon Bull Free—very fine thorough-bred animals, profitable to the owners, and they will add many times their cost to the value of the stock where they are used. A club of 120 to 365 subscribers will bring one of these animals. (See Nos. 7 to 12 in Premium Table.)

OR—: The Piano that Beats the World—(Steinway's of course.) One Lady secured *Five* of these, worth **$3,250.00**, between Sept., 1868, and July last, by sending subscribers to the *American Agriculturist*. Hundreds of other ladies may easily secure at least one. Hundreds of others may secure the lower-priced but excellent Colibri Piano. (See Nos. 62, 63, in Premium Table.)

OR—: Good Tools Free—not poor-tempered, iron things, but of the very best quality—a whole assortment of more than fifty pieces, just such as are really useful for yourself, and your sons, on the farm, and everywhere else, all in a neat chest, worth at the lowest rate $44.50 (No. 69): Send only 60 subscribers at $1.50 each, or 190 at $1 each!

OR—: Excellent Books Free—those for the Farm, Garden, and Household, your choice out of more than a hundred. A very little time in gathering subscribers will bring you several of these volumes delivered free. (See Nos. 100 to 112.)

OR—: Very Fine Table Furniture Free—Casters, Fruit Baskets, the best plated large and small Spoons, Knives and Forks, etc.,—all of extra make and quality, useful, ornamental, and durable. The Premium Table, Nos. 43 to 55,

will show how few subscribers will secure these valuable articles. Any Lady can get these subscribers almost anywhere! Or Gentlemen, or Boys can get the premiums to give as presents to others.

OR—: A Magnificent Cyclopedia Free—of sixteen great volumes, giving comprehensive descriptions of over **25,000** subjects, including every topic, person, place, and thing, you can think of, past and present—in short, a most complete and extensive Library in itself: All this will be presented in return for 96 subscribers!

OR—: First-rate Farm Implements Free—such as the Buckeye Mowing Machine, the Cylinder Plow, Collins' Cast-Steel Plow, Comstock's Hand Cultivator and Weeder—all very desirable, and easily obtainable. Many got them last year in return for odd hours and evenings spent in gathering subscribers, and thousands may get them this year, very easily, in the same way. (See Nos. 78, 79, 80, 81, in Premium Table.)

OR—: $20 Worth of Nursery Stock Free—whatever you may choose to select from Eastern and Western growers of positive reliability: Send 30 subscribers at $1.50, or 97 at $1 each.

OR—: Valuable Volumes of the American Agriculturist Free—for any year from 1857 to 1869. Each of these contain a great amount of information for the Farm, Garden, and Household. 13 or 16 subscribers secure 3 volumes in numbers, or bound, sent post-paid. (More at same rate—See Nos. 88 to 99 in Premium Table.)

OR—: A Free Pocket Knife—just the one you want, or your Boy, or your Girl wants—not a wrought or cast-iron affair, but a tip-top steel blade and beautiful handle "better than the 'Best!'"—Only 4, 5, or 6 subscribers will secure one of these! (See Nos. 56, 57, 58 in Premium Table.)

OR—: First-rate Family Scales—(Fairbanks' of course,) delicate enough to weigh half an ounce, and large enough to weigh yourself if you don't exceed 240 lbs! "A very handy thing about the house" is such a pair of scales. Only 21 subscribers will secure the scales! (Premium 83.)

OR—: A Free Gold Pen—that will write beautifully for years—a genuine one, in a real coin-silver case for the pocket, with ever-pointed pencil. Only 11 to 14 subscribers needed to get one of these fine pens. (See Nos. 72, 73, in Premium Table.)

OR—: OR—: OR—: A Great Many Other Good Things Free—"too numerous to mention," such as are named in the Premium Table, Nos. 30, 35, 39, and last, not least, No. 85, to light your way! Every thing offered is very good.

SEE "Special Notes" in 3d Column.

For Full Description of all the *above* Premium articles, see our last October paper, or send for free "*Descriptive Sheet.*"

[In the following table is given the price of each article, and the number of subscribers required to get it free, at $1.50 a year, *or* at the lowest club rate of $1 a year. For full descriptions of the articles send for our *Special Sheet.*]

Table of Premiums and Terms, For Volume 29 – 1870.

Open to all—No Competition

No.	Names of Premium Articles.	Price of Premiums.	Number of Subscribers required at $1.50	Number of Subscribers required at $1.
1	*Shorthorn Bull*	$500 00	425	1250
2	*Shorthorn Bull*	$600 00	500	1700
3	*Shorthorn Bull*	$700 00	580	1700
4	*Ayrshire Bull*	$100 00	120	350
5	*Ayrshire Bull*	$150 00	165	500
6	*Ayrshire Bull*	$200 00	210	650
7	*Alderney Bull*	$200 00	210	650
8	*Alderney Bull*	$300 00	300	900
9	*Alderney Bull*	$400 00	365	1050
10	*Devon Bull*	$100 00	120	350
11	*Devon Bull*	$150 00	165	500
12	*Devon Bull*	$200 00	210	650
13	*Cotswold Ram*	$100 00	120	350
14	*Cotswold Ram*	$200 00	210	650
15	*Cotswold Ewe*	$100 00	120	350
16	*Cotswold Ewe*	$150 00	165	500
17	*Southdown Ram*	$100 00	120	350
18	*Southdown Ram*	$150 00	165	500
19	*Southdown Ewe*	$75 00	100	285
20	*Southdown Ewe*	$100 00	120	350
21	*Chester White Pig*	$30 00	46	150
22	*Essex Pig*	$50 00	66	225
23	*La Fleche Fowls, one Pair*	$40 00	50	150
24	*Houdan Fowls, one Pair*	$40 00	50	150
25	*Creve Coeur Fowls, one Pair*	$40 00	50	150
26	*Black Spanish Fowls, one Pair*	$20 00	30	97
27	*Brahmas, Light, one Pair*	$15 00	22	75
28	*Gold Laced Sebright Bantams, one Pair*	$15 00	22	75
29	*Bresee's King of the Earlies, (2 lb. pare.)*	$2 00	5	22
30	*Norway Oats, (1 peck, Ramsdell & Co.)*	$2 75	7	27
31	*Garden Seeds for a Family (40 kinds)*	$5 00	13	37
32	*Flower Seeds for a Family (100 kinds).*	$5 00	13	37
33	*Garden Seeds & Flower Bulbs (Selection)*	$2 00	5	22
34	*Nursery Stock (any kinds desired)*	$20 00	30	97
35	*Set of Field Croquet*	$8 00	16	52
36	*Sewing Machine (Grover & Baker)*	$55 00	60	240
37	*Sewing Machine (Florence)*	$63 00	70	275
38	*Sewing Machine (Wilcox & Gibbs)*	$55 00	60	240
39	*Lamb Knitting Machine*	$60 00	67	270
40	*Wishing Machine (Doty's)*	$14 00	21	70
41	*Clothes Wringer (Best—Universal)*	$10 00	18	58
42	*Tea Set (Hart's best Silver Plated)*	$50 00	66	225
43	*Caster and Fruit Basket (do. do.)*	$30 00	44	140
44	*Cake Basket (do. do.)*	$12 00	19	65
45	*Revolving Butter Cooler (do. do.)*	$8 00	16	52
46	*Ice or Water Pitcher (do. do.)*	$18 00	27	90
47	*One Dozen Tea-spoons (do. do.)*	$6 00	15	45
48	*One Dozen Table spoons (do. do.)*	$12 00	19	65
49	*One Dozen Table Forks (do. do.)*	$12 00	19	65
50	*Knives and Forks (Patterson Bros.)*	$14 00	21	70
51	*Knives and Forks (do. do.)*	$18 50	27	90
52	*Knives and Forks (do. do.)*	$22 00	33	110
53	*Knives and Forks (do. do.)*	$25 50	39	124
54	*Carver and Fork (do. do.)*	$5 00	13	37
55	*Fluted Steel (do. do.)*	$2 50	6	35
56	*Pocket Knife (J. P. Swain)*	$1 50	4	
57	*Pocket Knife (do. do.)*	$2 00	5	22
58	*Pocket Knife (do. do.)*	$2 50	6	25
59	*Ladies' Pocket Knife (do. do.)*	$2 00	5	22
60	*Melodeon, 4-octave (G. A. Prince & Co.'s)*	$67 00	78	295
61	*Melodeon, 5-octave (do. do.)*	$112 00	138	400
62	*Piano, Splendid 7-oct. (Steinway & Sons)*	$650 00	540	1600
63	*Colibri Piano (Mathusheck P. F. Co.)*	$450 00	380	1150
64	*Silver Watch (American Watch Co.)*	$40 00	50	150
65	*Ladies' Fine Gold Watch (Am. Watch Co.)*	$100 00	110	350
66	*Breech-loading Pocket Rifle*	$16 00	24	80
67	*Double Bbl. Gun, (Cooper, Harris & H.)*	$30 00	46	150
68	*Repeating Shot Gun (Roper Sp. A. Co.)*	$75 00	92	312
69	*Tool Chest (Patterson Bros.)*	$44 50	60	190
70	*Case of Mathematical Instruments*	$9 00	18	55
71	*Case of Mathematical Instruments*	$15 00	22	75
72	*Gold Pen, Sil. Case, E. (Warren & Spadone)*	$4 50	11	35
73	*Gold Pen and Silver Case, F. (do. do.)*	$5 50	14	42
74	*Ladies' Gold Pen and Rubber Case (do.)*	$6 00	15	42
75	*Charles Pratt's Astral Oil (1 can, 5 Gal.)*	$1 50	4	32
76	*Barometer (Woodruff's Mercurial)*	$10 00	18	58
77	*Barometer (Woodruff's Mercurial)*	$15 00	22	75
78	*Buckeye Mowing Machine, No. 2.*	$125 00	150	450
79	*Patent Cylinder Plow, (R. H. Allen & Co.)*	$18 00	27	90
80	*Collins & Co.'s Cast Cast-Steel Plow*	$25 00	38	120
81	*Hand Cultivator and Weeder (Comstock)*	$9 00	17	54
82	*Pump and Sprinkler (Page's)*	$5 00	13	37
83	*Family Scales (Fairbanks' & Co.)*	$14 00	21	70
84	*Building Blocks (Crandall)*	$2 00	6	20
85	*Pocket Lanterns, One Dozen*	$9 00	17	54
86	*New American Cyclopedia (Appleton's)*	$80 00	96	325
87	*Worcester's Great Illustrated Dictionary*	$10 00	18	58
88	*Any Back Volume Agriculturist* (Unbound. Postpaid.)	$1 75		20
89	*Any Two Back Volumes do.* (Unbound. Postpaid.)	$3 50		29
90	*Any Three do. do. do.* (Unbound. Postpaid.)	$5 25	13	38
91	*Any Four do. do. do.* (Unbound. Postpaid.)	$7 00	15	47
92	*Any Five do. do. do.* (Unbound. Postpaid.)	$8 75	17	54
	—(Each add'l Vol. at same rate)			
93	*Thirteen Vols. XVI. to XXVIII.* (Unbound. Postpaid.)	$22 75	33	108
94	*Any Back Volume Agriculturist* (Bound. Postpaid.)	$2 50		24
95	*Any Two Back Volumes do.* (Bound. Postpaid.)	$5 00		36
96	*Any Three do. do. do.* (Bound. Postpaid.)	$7 50	16	48
97	*Any Four do. do. do.* (Bound. Postpaid.)	$10 00	18	60
98	*Any Five do. do. do.* (Bound. Postpaid.)	$12 50	21	71
	—(Each add'l Vol. at same rate)			
99	*Thirteen Vols. XVI. to XXVIII.* (Bound. Postpaid.)	$32 50	45	137
100	*A $10 Library (Your Choice)* (At. sent part through by Mail or Express.)	$10 00	18	58
101	*A $15 Library do. ..* (At. sent part through by Mail or Express.)	$15 00	24	88
102	*A $20 Library do. ..* (At. sent part through by Mail or Express.)	$20 00	31	106
103	*A $25 Library do. ..* (At. sent part through by Mail or Express.)	$25 00	38	125
104	*A $30 Library do. ..* (At. sent part through by Mail or Express.)	$30 00	44	144
105	*A $35 Library do. ..* (At. sent part through by Mail or Express.)	$35 00	50	162
106	*A $40 Library do. ..* (At. sent part through by Mail or Express.)	$40 00	56	177
107	*A $45 Library do. ..* (At. sent part through by Mail or Express.)	$45 00	62	192
108	*A $50 Library do. ..* (At. sent part through by Mail or Express.)	$50 00	68	207
109	*A $60 Library do. ..* (At. sent part through by Mail or Express.)	$60 00	80	237
110	*A $75 Library do. ..* (At. sent part through by Mail or Express.)	$75 00	100	282
111	*A $100 Library do. ..* (At. sent part through by Mail or Express.)	$100 00	125	360
112	*A Choice of Good Books (See Terms below).*	..	..	..

☞ *Every Premium article is new and of the very* **best** *manufacture. No charge is made for packing or boxing any article in our Premium List. The thirty-nine Premiums,* **Nos. 29** *to* **33, 56** *to* **59, 70** *to* **74,** *and* **88** *to* **112** *inclusive, will each be delivered* FREE *of all charges, by mail or express (at the Post-office or express office nearest recipient), to any place in the United States or Territories.—The other articles cost the recipient only the freight after leaving the manufactory of each, by any conveyance specified.*

SPECIAL NOTES.

Read and carefully Note the following Items: (*a*) All subscribers sent by one person count, though from one or a dozen different Post-offices. But....(*b*) State with each name or list of names sent, that it is for a premium....(*c*) *Send the names as fast as obtained, that the subscribers may begin to receive the paper at once.* You can have any time, from one to four months, to fill up your list....(*d*) Send the exact money with each list of names, so that there may be no confusion of money accounts....(*e*) Old and new subscribers all count in premium clubs, but a portion, at least, should be new names; it is partly to get these that we offer premiums to canvassers. N.B.—The extra copy to clubs of ten or twenty is not given where premium articles are called for....(*f*) Specimen Numbers, Cards, and Show-bills, will be supplied free as needed by canvassers, but they should be used carefully and economically, as they are very costly....(*g*) Remit money in Checks on New York Banks or Bankers, payable to order of Orange Judd & Co., or send Post-office Money Orders. If neither of them is obtainable, Register Money Letters, affixing stamps both for the postage and registry; put in the money and seal the letter in the presence of the Postmaster, and take his receipt for it. Money sent in any of the above ways is at our risk.

Description of Premiums.

Every Premium is described in the October Agriculturist, and also in a **Special Sheet,** *which will be sent* **free** *to every one desiring it. We have room here for the following only:*

No. 84.—Crandall's Improved Building Blocks furnish a most attractive amusement for children. They are very simple in construction, will stand years of children's handling without breaking, and give renewed pleasure daily. Churches, Dwellings, Barns, Mills, Fences, Furniture, etc., in almost endless variety, can be built with them, and the structures remain so firm as to be carried about. For developing the ingenuity and taste of children they are unequaled. The Blocks are put up in neat boxes, accompanied by a large hand-bill giving various designs of buildings. This is one of the most successful toys ever invented.

Nos. 88 to 93.—Volumes of the American Agriculturist (Unbound).—These amount to a large and valuable Library on all matters pertaining to the Farm, Garden, and Household, and contain more varied information on these subjects than can be obtained in books costing three times as much. The price of the volumes is $1.50 each, at the Office, or $1.75 if sent by mail, as they must be post-paid.——They are profusely Illustrated, the Engravings used in them having alone cost about $35,000. Those obtaining premiums for less than twelve volumes can select any volumes desired, from XVI. to XXVIII., inclusive. For ordinary use, the sets of numbers unbound will answer quite well.

Nos. 94 to 99.—Bound Volumes of the Agriculturist.—These are the same as Nos. 88 to 93 above, but are neatly *bound* in uniform style, and cost us more for binding and postage. Sent post-paid.

Nos. 100 to 111.—Good Libraries.—In these premiums, we offer a choice of **Books** for the **Farm, Garden,** and **Household.** The person entitled to any one of the premiums 100 to 111 may select any books desired from the list of our book-published monthly, (see another page), to the amount of the premiums, and the books will be forwarded, Post or Express paid. $25 or $50 worth of books pertaining to the farm will give the boys new ideas, set them to thinking and observing, and thus enable them to *make their heads help their hands.* Any good book will, in the end, be of far more value to a youth than to have an extra acre of land on coming to manhood. The thinking, reasoning, observing man, will certainly make more off from 49 acres than he would off from 50 acres without the mental ability which reading will give him. ☞ Let the Farmers of a neighborhood unite their efforts and get an agricultural Library for general use.

No. 112.—General Book Premium. Any one sending 25 or more names may select Books from our published list to the amount of 10 cents for each subscriber sent at $1; or 30 cents for each name sent at $1.20 each; or 60 cents for each name at $1.50. *This offer is only for clubs of 25 or more. The books will be sent by mail or express, prepaid through by us.*

Commercial Matters—Market Prices.

The following condensed, comprehensive tables, carefully prepared specially for the *American Agriculturist*, show at a glance the transactions for the month ending Dec. 14, 1869, and for the corresponding month last year.

1. TRANSACTIONS AT THE NEW YORK MARKETS.

RECEIPTS.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
24 days *this* m'th	519,000	3,173,000	729,000	256,500	1,558,000	2,147,000
29 days *last* m'th	471,000	3,763,000	1,656,000	35,000	853,000	1,645,000

SALES.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
24 days *this* m'th	336,000	3,018,000	1,609,000	47,000	763,000	1,656,500
29 days *last* m'th	312,500	3,811,000	1,965,000	38,500	881,000	1,537,000

2. *Comparison with same period at this time last year.*

RECEIPTS.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
24 days 1869	519,000	3,173,000	729,000	56,500	1,558,000	2,147,000
26 days 1868	428,000	3,297,000	983,500	241,000	731,000	2,356,000

SALES.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
24 days 1869	336,000	3,018,000	1,609,000	47,000	763,000	1,656,500
26 days 1868	289,000	1,786,000	1,639,000	201,000	268,000	2,701,000

3. *Exports from New York*, Jan. 1 *to* Dec. 11:

	Flour.	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
1869	1,461,664	17,661,647	1,616,891	142,512	46,594	48,463
1868	967,977	5,585,844	5,785,037	153,093	——	82,537

4. *Stock of grain in store at New York:*

1869.	*Wheat,* bush.	*Corn,* bush.	*Rye,* bush.	*Barley,* bush.	*Oats,* bush.	*Malt,* bush.
Dec. 11	3,810,562	833,909	59,043	285,906	1,386,594	77,097
Nov. 10	1,616,030	693,083	31,700	31,581	281,881	66,782
Oct. 11	978,272	445,068	31,467	5,948	120,953	67,094
Sept. 6	745,121	127,736	54,681	——	183,920	131,870
Aug. 9	634,262	253,155	75,797	361	50,219	105,458
July 10	531,657	328,613	71,418	2,966	259,985	97,177
June 7	637,877	385,241	107,545	383	555,993	109,746
May 11	1,056,048	394,196	107,502	17,634	613,166	77,677
Apr. 10	1,634,633	1,080,769	165,008	48,281	1,178,740	66,664
March 12	1,990,416	1,301,167	211,880	81,616	2,000,457	50,095
Feb. 10	2,708,609	1,107,646	225,182	91,384	2,390,529	58,034
Jan. 13	3,534,172	1,509,233	263,200	54,740	2,864,354	236,001
1868.						
Dec. 14	3,475,541	2,695,819	287,101	312,921	3,044,594	99,526
Nov. 10	1,821,057	2,773,309	123,248	371,055	2,082,793	23,691

5. *Receipts at tide-water at Albany to Nov. 30th:*

	Flour, bbls.	*Wheat,* bush.	*Corn,* bush.	*Rye,* bush.	*Barley,* bush.	*Oats,* bush.
1869	521,300	18,028,800	7,038,800	251,460	3,159,300	4,831,300
1868	440,900	13,739,900	16,810,500	848,900	5,537,600	11,646,600
1867	331,100	7,054,000	14,382,400	735,200	2,626,400	6,876,109

CURRENT WHOLESALE PRICES.

	Nov. 15.	Dec. 14.
PRICE OF GOLD	126¾	123¼
FLOUR—Super to Extra State	$5 00 @ 6 45	4 40 @ 6 15
Super to Extra Southern	5 90 @10 00	5 60 @10 00
Extra Western	5 25 @ 9 75	5 00 @ 9 50
Extra Genesee	6 60 @ 8 00	6 25 @ 7 50
Superfine Western	5 00 @ 5 50	4 40 @ 4 90
RYE FLOUR	4 70 @ 6 05	4 50 @ 5 85
CORN MEAL	4 85 @ 5 25	4 50 @ 5 15
WHEAT—All kinds of White	1 40 @ 1 65	1 40 @ 1 65
All kinds of Red and Amber	1 00 @ 1 43	1 05 @ 1 35
CORN—Yellow	1 08 @ 1 10	92 @ 1 14
Mixed	98 @ 1 07	1 06 @ 1 12½
OATS—Western	62 @ 65½	62 @ 63½
State	65 @ 66½	62½@ 64½
RYE	1 06 @ 1 19	1 02 @ 1 15
BARLEY	1 00 @ 1 35	1 05 @ 1 30
HAY—Bale ₱ 100 lb	65 @ 1 10	75 @ 1 15
STRAW, ₱ 100 lb	65 @ 1 05	75 @ 1 10
COTTON—Middlings, ₱ lb	25 @ 25¾	25¼@ 26¼
HOPS—Crop of 1869, ₱ lb	15 @ 28	15 @ 28
FEATHERS—Live Geese, ₱ lb	85 @ 92½	85 @ 95
SEED—Clover, ₱ lb	12 @ 12¾	12½@ 13¾
Timothy, ₱ bushel	3 75 @ 4 00	3 75 @ 4 00
Flax, ₱ bushel	2 35 @ 2 45	2 35 @ 2 40
SUGAR—Brown, ₱ lb	10¼@ 13¼	10¼@ 12¾
MOLASSES, Cuba, ₱ gal	35 @ 46	30 @ 48
COFFEE—Rio (Gold, in bond)	8½@ 12¾	8½@ 12¾
TOBACCO, Kentucky, &c., ₱ lb	9½@ 17	9 @ 17
Seed Leaf, ₱ lb	12 @ 75	12 @ 75
WOOL—Domestic Fleece, ₱ lb	45 @ 60	44 @ 60
Domestic, pulled, ₱ lb	32 @ 47	32 @ 47
California, unwashed	22 @ 33	22 @ 33
TALLOW, ₱ lb	10½@ 11¼	10 @ 10½
OIL-CAKE—₱ ton	46 50 @49 00	46 00 @48 00
PORK—Mess, ₱ barrel	29 75 @30 75	32 00 @33 25
Prime, ₱ barrel	23 75 @26 75	23 75 @27 00
BEEF—Plain mess	3 00 @13 00	3 00 @13 00
LARD, in trcs. & barrels, ₱ lb	16¾@ 18¼	18 @ 20
BUTTER—Western, ₱ lb	20 @ 35	20 @ 35
State, ₱ lb	30 @ 50	33 @ 46
CHEESE	10 @ 18	10 @ 17½
BEANS—₱ bushel	2 00 @ 3 50	2 10 @ 3 40
PEAS—Canada, in bond, ₱ bu	1 35 @ 1 45	1 05 @ 1 10
EGGS—Fresh, ₱ dozen	35 @ 42	41 @ 45
POULTRY—Fowls & Chickens	16 @ 17	12 @ 17
Turkeys, ₱ lb	20 @ 22	14 @ 20
Geese, ₱ Pair	1 75 @ 2 50	1 75 @ 3 00
POTATOES, New—₱ bbl	1 25 @ 2 00	1 00 @ 2 25
APPLES—₱ barrel	2 50 @ 5 00	2 50 @ 4 50
SWEET POTATOES, ₱ bbl	— @ —	3 00 @ 5 00
TURNIPS—₱ bbl	1 00 @ 1 50	1 25 @ 1 75
CABBAGES—₱ 100	@ —	4 50 @ 6 50
ONIONS—₱ bbl	2 00 @ 3 75	4 50 @ 6 50
CUCUMBERS—₱ 100	75 @ 1 00	— @ —
GRAPES—₱ lb	12 @ 35	5 @ 12
BROOM-CORN—₱ lb	— @ —	12 @ 16

Gold has been as low as 121, but rallied to 123¾ closing at 121½. Breadstuffs have been arriving freely, more so than during any preceding month of the season, and prices have been further depressed, influenced in part, by the decline in gold. At the reduced figures, there has been a restricted business transacted. Export buyers have been purchasing less freely. There has been a moderate home trade movement. Some speculative inquiry has been noted for low grades of Flour, spring and amber winter Wheat, mixed Corn, and Barley. The general market has shown a little more steadiness toward the close, but has been without remarkable animation..... Cotton has been more sought after, and, on the whole, firmer. The available supply here has been quite limited. .....Wool has been in slack request at drooping rates. The auction sale of the 9th inst. was not very successful, though the prices realized were up to a fair average of the open market rates for grades, similar to those offered at auction.....Tobacco has been quite dull, at about former quotations... ..Provisions have been in moderate demand at irregular figures.....Hay has been held with more firmness, since the closing of river and canal navigation, but has been quiet.....Seeds have been quoted stronger in price, but have been slow of sale. .....Hops have attracted less attention, and prices have favored buyers.

New York Live Stock Markets.—

WEEK ENDING.	*Beeves.*	*Cows.*	*Calves.*	*Sheep.*	*Swine.*	*Tot'l.*
Nov....14th	6,480	113	1,300	32,478	16,110	56,481
do. 22d	6,673	103	859	35,888	14,695	57,618
do.....29th	5,393	84	983	38,171	18,453	63,083
Dec.....6th	5,049	139	1,358	24,125	20,133	50,804
do. 13th	6,594	125	577	38,483	12,327	58,106
Total in 5 Weeks	29,588	564	5,077	169,145	81,708	286,092
do. *for prev. 4 Weeks*	31,960	459	8,082	172,218	82,965	295,684

	Beeves.	*Cows.*	*Calves.*	*Sheep.*	*Swine.*
Average per Week	5,918	113	1,015	33,829	16,341
do. do. *last Month*	7,990	115	2,020	43,054	20,741
do. do. *prev's Month*	6,986	82	1,734	37,371	17,338
Average per Week, 1868	5,733	105	1,588	27,182	18,809
do. do. do. 1867.	5,544	64	1,320	22,154	20,605
do. do. do. 1866.	6,748	94	1,200	20,000	13,000
do. do. 1865.	5,235	118	1,500	16,091	11,023
do. do. do. 1864.	5,161	115	1,511	15,315	12,676
Total in 1868	298,128	5,466	82,571	1,413,479	978,061
Total in 1867	293,832	3,369	69,911	1,174,154	1,102,643
Total in 1866	298,880	4,885	62,420	1,040,000	672,000
Total in 1865	270,274	6,161	77,991	836,733	573,190
Total in 1864	267,609	7,603	75,621	782,462	660,277

There has been a constant decline in the supply of beef cattle since our last report. Instead of an overstocked market, we have a light and lively one. Prices have not advanced from week to week, as many drovers anticipated, and much of the stock was bought too high to allow the owners to realize a large profit. The quality of the stock has much improved for the last two months, and now it presents a fair average. Leaving out a large proportion of Texan stock, the average quality would be called good. The lean Texan cattle are far too plenty, and sell at too low a figure to place the average price high enough to be an indication of the value of good Ohio and Illinois Steers. Butchers still complain of dull trade, and are desirous of buying in small lots only, and of the best. Good fat bullocks sell quickly, at a little advance on last month's prices, while thin, bony Texans fall a little below. Below is the list of prices, average price, and figures at which the largest lots were sold.

Nov. 14, ranged 9½@17c. Av. 13¾c. Large sales 13½@ 14½
do. 22d do. 8 @16½c. do. 14c. do. do. 13 @ 15
do. 29th do. 8 @16½c. do. 14c. do. do. 13 @ 15
Dec. 6th do. 9 @17c. do. 14½c. do. do. 13½@ 15½
do. 13th do. 9 @17½c. do. 14¼c. do. do. 13½@ 15½

There has been quite a quantity of dressed beef and mutton brought from Chicago and sold in our market. The freight on dressed beef is much less than for the same alive, and it sold cheap, the owner getting from 7@9c. per pound by the quarter or side. This fact, together with an abundance of cheap poultry, had its influence on the market price of livestock, so that really the advance is not so much as the diminished supply would indicate. We place the advance at about ½c. per pound, since our last report, on good grades, and none on medium or poor cattle....**Milch Cows.**—The demand has been quite lively in this department, and better prices are paid for fresh cows. The light run of beef enabled city milkmen to sell their dry cows for nearly enough money to purchase fresh ones. The very best of each market sold for $100 each, and upwards, including the calf. Good cows range from $85@$95; medium, $65@$80, and poor ones all the way down to $40 each. ....**Veal Calves** have been less plenty, and prices are fair. Fresh, young calves, if fat, sell quickly; but if poor, and have been kept long from the cow, much less is offered for them. "Hog-dressed" calves have come in quite plenty during the cold weather, and influenced the market somewhat. Fat calves are scarce, and go quickly at 12½c@13c. per pound. Common, 10c@11c. Grass-fed, from 4c.@6c., live weight. "Hog-dressed" sell from 8c.@18c., according to quality and condition... **Sheep.**—We notice but little change in the market. Both sheep and lambs are plenty, and, we ought to add, poor. What our butchers want are large, fat sheep, and we wish our farmers would learn this and send good mutton sheep to market. A sheep that weighs 120@130 pounds will sell a great deal more quickly at 7c.@8c. per pound than one that only weighs 60 pounds will at 4c.; and a difference of $5 or $6 upon a sheep is something. Prices for the past month range from—Extras, 6½c.@7½c.; Medium, 5c.@6c., and poor at 4c. or less per pound....**Swine.**—There has been an advance in price since our last report of about ½c.@¼c. per pound. The trade has been quite lively, and supply good. The quantity of "Western-dressed" has been quite enough for the demand, and sell for from 13c.@13½c. City and "Up-River dressed" bring 13½c.@15c. per lb. Live hogs sell for 10c.@11c. per lb.

Nurserymen and Seedsmen.—A list of the principal dealers in all kinds of horticultural stock will be found in the Horticultural Annual for 1870.

containing a great variety of Items, including many good Hints and Suggestions which we throw into smaller type and condensed form, for want of space elsewhere.

Postage 12 Cents a Year in Advance.—The postage on the *American Agriculturist* anywhere in the United States and Territories, *paid in advance*, is 3 cents a quarter, 12 cents a year. If not paid in advance, twice these rates may be charged.

How to Remit:—Checks on New York Banks or Bankers are best for large sums; made payable to the order of **Orange Judd & Co.**

Post-Office Money Orders may be obtained at nearly every county seat, in all the cities, and in many of the large towns. We consider them perfectly safe, and the best means of remitting fifty dollars or less, as thousands have been sent to us *without any loss.*

Registered Letters, under the new system, which went into effect Oct. 1, 1868, are a very safe means of sending small sums of money where P. O. Money Orders cannot be easily obtained. *Observe*, the *Registry fee*, as well as postage, *must be paid in stamps* at the office where the letter is mailed, or it will be liable to be sent to the Dead Letter Office. *Buy and affix the stamps both for postage and registry, put in the money, and seal the letter in the presence of the postmaster, and take his receipt for it.* Letters thus sent to us are at our risk.

Clubs can at any time be increased by remitting for each addition the price paid by the original members, if the subscriptions all date at the same starting point. The back numbers will, of course, be sent to added names.

The "Peach Grub Man."—L. E. K. of St. Joseph, Michigan, says of the "Peach grub man:" "He has been around here selling a private plan for keeping grubs out of peach trees, which seems nothing more nor less than banking up the earth around the collar of the tree ten or twelve inches high in June and leaving it there until freezing weather in the fall. Yet simple as it may appear, it would seem by his subscription list that he has carried off a considerable amount of money from these parts. The dose was administered at various prices, varying from 8 to 20 dollars according to the number of trees owned by the victim. The same plan has long been in use I believe by some of our good cultivators. Now it strikes me that it is bad enough to have our trees injured by the grubs themselves without having them attacked by a human vampire, who has filched the experience of others and then bartered it as his own for gold or greenbacks." L. E. K. evidently takes the papers, and is not to be caught.

Sundry Humbugs.—We are obliged to begin this year with a continuation of the same work that has cost so much time, investigation, and annoyance for many years past, viz., the exposures of the operations of the swindlers who prey upon the simple and unsuspecting, and very often upon intelligent people. Farmers, as a class, are subject to the attacks of these thieving operators, because, being honest themselves and accustomed to deal honestly with each other, they more naturally trust to the representations of others outside their own circle. We have abundant reason to know that the warnings and explanations of the *American Agriculturist* have saved many millions of dollars to its readers, and through them, to a multitude of others. Yet there is so large a class who do not yet read this paper, or come within the influence of those who do, that the swindlers still find their operations remunerative, though greatly less so than they would if this journal could be bought off or frightened off—a thing very often attempted. Unwilling to advertise or give notoriety to these parties, or to give them the credit of pretending to justify their operations, we never publish any accounts of their various law suits *commenced* against us, though they are frequent. We should fear we were not doing our whole duty to our readers if there were not more or less suits pending against us by those whom we have daguerreotyped in these columns. It would be unfortunate should this class ever come to speak well of us. .....To our new readers let us say that the names and Post-Office address of nearly every man having a settled residence in this country, and also of most unmarried young men and women, including multitudes of boys and girls from 10 years old upward, have been obtained by various parties, in one way and another. These names are kept on lists, from which copies are purchased by the swindling operators—often under false pretences, as that they wish to send out specimen copies of news-

papers, or advertisements of good new articles. We have been offered large sums simply to let names be copied from our mail books, ostensibly for legitimate business purposes. (Of course we have never allowed a single name thus to go out, under any circumstances. Even our old business letters, when no longer needed, are so thoroughly "hashed" in a cutting-box that no names can ever be deciphered.) The above explanation will diminish the wonder so often expressed as to "how did the swindlers get my name?" They get it from some one of these "lists" that have been gathered by those who make a business of this very thing.....Several large bundles of recent letters before us refer to parties shown up during the past four months, such as Wogan & Co., Noyes & Co., J. M. Blake & Co., Gumbridge & Co., Kohl & Co., Sayre & Co., Todd & Co., Harris & Co., Andrews, Michelin & Co., etc. Any one receiving circulars from these are referred to our previous numbers.....Wogan & Co., like many others of their ilk, "caught a Tartar" in Mr. Jas. Gayler, special U. S. Mail agent, and editor of *The Mail*, who is doing excellent service in prosecuting the harpies, and interfering with their use of the mails. Large numbers of letters recently sent to Wogan & Co. will go back to the foolish writers through the Dead-letter Office, to which they have been consigned, thanks to Mr. Gayler. Calvin Willis is boarded at the public expense (in State's prison), besides being fined, for sending indecent publications. That boarding-house will have several new patrons soon, if justice be done. .....David M. Clinton's "Great Dollar Sale" at 234 Broadway we vainly hunted for from cellar to attic. The inevitable Todd was found to be getting the letters for that name. That game has been stopped.....W. H. Clement & Co., No. — Canal street, and Porter & Co., Janncey Court, are after the money of those who are inclined to deal in counterfeit money, with their "fac-similes" (*little* photographs) of U. S. Treasury notes, greenbacks and currency, put up in boxes of rubbish.....Lotz & Co., No. — Broadway, and J. P. Waters & Co., on Broadway, are in the same line—the same as Gumbridge, Wogan, Blake, etc .. ..G. W. Harris & Co., have a crafty dodge. They pretend to be "Receivers," trying to settle up the affairs of Wiggins, Bradford & Co., and to have $200 Gold Watches to deliver to those who pay them 5 per cent ($10.00) for expenses. Sundry merchants and others of this city tell us they have had remittances of them, sums of $10 each, from country correspondents, wishing them to get and forward the said $200 watches—a certain proof that the green-horns and trusting people are not all dead yet....."Music Boxes" are offered by sundry parties in Liberty street and elsewhere through circulars. They put in engravings of genuine boxes, and offer them, apparently, for $2 to $5 each; but when they get your money they send you a little mouth organ worth a dime or so, on which you can play as many "tunes" as you know how.....Our space is full, and we must wait until next paper for further reports.

Water Rams.—"W. W." of Howard Co., Md., writes: "I have a spring of excellent water about one hundred yards from my dwelling and thirty feet lower discharging between 30 and 40 gallons per minute and having in a descent of 60 feet a fall of about 10 or 12 feet. Under such circumstances would you advise the use of a Ram for conveying this water to my dwelling? Would it (the Ram) be likely to get out of order?"—In this case a water Ram would be just the thing to keep a cistern filled with water in the attic of the house, and the overflow would make a fountain in the garden. We know a case where a ram has been running steadily 20 years, needing occasional repairs, which rarely required a plumber.

Small Fruits in 1869.—See a full report, by A. S. Fuller, in the Horticultural Annual.

The American Agricultural Annual for 1870 (152 pages, 12mo).—This little volume, like its predecessors, is a farmer's hand-book, which, besides containing a complete Almanac and Calendar of operations for every month, reviews briefly the past year, notices the important inventions respecting agriculture, contains lists of the agricultural and kindred papers of North America, of agricultural books published within the year, of the chartered agricultural schools of the United States, etc. One of the most important and useful features of this Annual is a Farmer's Directory, giving the names and addresses of nearly 1,000 individuals or firms in the United States and Canada, manufacturers or dealers in Agricultural Implements of various sorts, Seeds and Fertilizers, and Breeders of improved stock from Horses to Trout. Besides this, the following subjects are discussed at some length, and many of the articles are beautifully illustrated with *original* engravings: Adobe Houses; Potatoes worth Raising, by D. Hexamer; Care of Hen and Chickens; Root Crops and their Culture, by Joseph Harris; Dry Earth in the Barn; Characteristics of different Breeds of Stock; Progress in Fish Culture; Fish as Farm Stock, by Wm. Clift; English Agricultural Implements; Progress of Invention as affecting the Dairy business; Notes on Veterinary Subjects; Coöperation in Swine Breeding, by Dr. Calvin Cutter; Experience in Steaming Fodder for Cows, by S. M. & D. Wells. Published by Orange Judd & Co., in cloth and paper, price 75 and 50 cents.

Death of B. D. Walsh.—Mr. Walsh has long been known as an active Entomologist and most of the Agricultural journals in the country have been enriched by his contributions. Of late he has been the State Entomologist of Illinois and one of the editors of the American Entomologist both of which places he filled with marked industry and vigor. Mr. W. was an Englishman by birth, but came to this country early in life and settled in Illinois. His death, at the age of 62, was the result of an injury received while walking on a railroad track and occurred on the 18th of Nov. last.

The New Apples and Pears are described and figured in the Horticultural Annual for 1870.

Seed Peas.—One of our large seedsmen has sold all his stock of old seed peas to a dealer in "Pure Java Coffee." This is good news for buyers of seed peas. The drinkers of coffee may draw their own conclusions.

Report of the Department of Agriculture for 1868.—This volume reaches us just as the paper goes to press and we are able to do a little more than to acknowledge its receipt. Upon running it over we find a conspicuous absence of articles spun out against space by obscure penny-a-line writers. Besides, the reports of the Commissioner and his assistants, there are papers upon Grape culture, Culture of the Peanut, the Potato, Osage Hedges, Esparto Grass, Nim of Yucatan, Bee Keeping, Silk Culture and many others. While commending the general appearance of the volume, we must advise the Department or the Printing Bureau to get a new proof reader, as its use of capital letters is against all accepted rules, and a blemish to the work.

Dicentra and Dielytra.—J. L. Mock, Petaluma, Cal. We have stated, we cannot tell how many times, that the word "Dielytra" came into use through a misprint of Diceatra, the botanical name for Bleeding Heart. Florists will probably call it Dielytra until the present generation dies out.

Our Circulation in the SOUTH is rapidly extending, and is now threefold greater in the Gulf States than it was before the war. We shall try to meet the wants of all sections, and we solicit hints and suggestions from the South. An intelligent gentleman from Louisiana called upon us recently, to propose having a special edition of this Journal for the Southern States, prepared by substituting, for a part of the paper, articles designed only for those States, but after looking carefully through several numbers, he could find nothing to be spared, and nothing that would not be useful to that section of the country.

Peaches and Cherries.—F. R. Elliott describes and figures the new ones that have appeared in the Horticultural Annual for 1869.

Special Premium.—The Elegant Picture "Dandelion Time." By Mrs. Lilly M. Spencer.—The name of Mrs. Spencer has become familiar throughout the country. Though of a poetic imagination, and the author of many paintings which comprise classical and allegorical subjects, she is best known for her pictures of domestic life. The publishers of the American Agriculturist have purchased of her the beautiful painting called "Dandelion Time," and having issued it as a chromo, it is now offered by them for sale. But in response to requests from many who desire to secure the picture without paying money for it, we have consented to offer it as a special premium for subscribers.

In this elegant picture, three children, of whom the youngest is a plump, rosy babe, and a huge Newfoundland dog which they have decked with a dandelion wreath, are represented out at play upon the green grass. The scene is full of happy life and cannot fail to delight both old and young. The picture would prove an ornament in any home, and be a most beautiful and acceptable present to make to a friend. It is 13 by 18 inches in size, and mounted on linen will be sent by mail, in a tube with all materials and directions for stretching. Price, post-paid $6.00. We will send it in this form, for 10 subscribers at $1.50 each or 30 at $1 each. The price of this picture in a neat black-walnut frame, gilt band, is $9. For 15 subscribers at $1.50 each, or 45 at $1 each, we will send it in this style by express, carefully boxed, *the receiver to pay express charges.* See advertisement on p. 30.

The Cover.—Aside from the illustrations upon the inside of the paper, we have each month given upon the cover a carefully engraved picture in the center, with neat corner pieces, each month. The engraving presented upon the cover of the present month is interesting on two accounts. It shows the style of plow and team in use in Germany, and it is from an oil painting, executed by a lady over 70 years of age, and sent to this country as a present to her little grandchild.

Good Premiums in abundance, and of real value, are offered by the Publishers, and they are coming to be more and more appreciated. It is quite an easy matter for any one to secure a good article with but a little effort. Look over pages 4 and 5.

Study the Advertising Columns.—We often take up a daily or weekly newspaper and carefully read all the Advertisements through, and never do this without getting some useful information. One learns what business is being done, and how it is done—what is for sale, and by whom. *Our* business columns are of especial value, because of the care taken to exclude all advertisements from parties not believed to be honest. We mean to advertise for no parties who have not both the ability and intention to do all they promise. In order to please advertisers, we repeat the request that those sending orders, or for circulars, etc., to our patrons, will mention *where* the advertisements were seen. We also like to have advertisers thus get some idea of the large number of intelligent and enterprising people they find among our readers.

New Flowers.—Notes on new flowering and ornamental plants, with beautiful engravings, in the Horticultural Annual for 1870.

The Cylinder Plow.—"C. T. M.," Beulah, Miss. The Cylinder Plow so well spoken of in 1861, is still manufactured and is as good as ever, probably much better than it was then.

To Advertisers.—Please send in business notices early. It takes a good deal of time to print our immense edition carefully, with its numerous engravings, which are necessarily worked with slow speed. Please remember that our rules require good evidence of responsibility and reliability from advertisers unknown to the editors personally, or by good reputation. No "Patent Medicines," or advertisements deceptive in form or matter can be received at any price. By living up to this rule we shall make our business columns doubly valuable to the reader, and to the advertisers who are admitted. The fact of their notices appearing here is thus a recommendation. With this fact in view, and our immense circulation, we are glad to know, and to be assured by our oldest patrons, that our terms, high as they may seem, are really the lowest in the country.

Hawk and Owl Traps.—Abe Harrison of York, Ill., writes: "To catch Hawks or Owls, take a pole 20 feet long, to be set a short distance from the house or barn or on the poultry house. Split the top so as to admit the base of a common steel trap, which should be made fast. When both trap and pole are set you may be sure of game of some kind. These birds naturally light on high objects such as dead branches of trees or tops of stacks, and one should use judgment about the place where he puts the traps. An open field, near the chicken yard, is probably best.

Leucothoe racemosa.—Rev. J. H. Brakeley writes: "I noticed in your September number, in an article on the *Leucothoe racemosa*, a request for the common name of this beautiful plant. In visiting Dr. Trowbridge, of Tom's River, N. J., a few weeks since, he pointed out this plant to me as the favorite food of a caterpillar of considerable size, which had destroyed some of their cranberry vines. He called it *Kill-calf*. I recognized it at once as the *Andromeda racemosa* of my early botanical days. The Doctor had observed the moth depositing the eggs, and had noticed that the young larvæ would not attack the cranberry vines until they had first destroyed all the foliage of the *Kill-calf*

Early Rose Potato.—The Most Yet.—Mr. Cornelius Simon, of Bloom, Ohio, says: "I took just one lb. of Early Rose, (four tubers), and cut them in pieces, (about 50), one eye to each piece, and put them in a box to sprout about the 1st of May. Transplanted the sprouts (about 260) between the 1st of June and the 4th of July, in a rich sandy soil in rows two feet apart, putting one sprout every foot in the rows, and produced by actual weight, 751 lbs. of good and large potatoes. The largest potato weighed two lbs. seven oz. From the best hill I got six lbs. four oz. From a piece of ground 16x18 feet, I dug 385 lbs.; at the rate of about 760 bushels per acre.

Money at Six Per Cent.—An Iowa farmer writes us: "I see money quoted in your city as being in good supply at 6 per cent. I want to lift a mortgage on my farm of $1,000, on which I am paying 10 per cent, the current rate here. I send you my note for that amount at 8 per cent, payable in one and two years. I am responsible, having a farm of 160 acres, worth $40 an acre, and no debts but the above."—Money is frequently abundant "*on call*" at 6 per cent, and often lower; but in *all* these cases it must be fully secured by collaterals that can be sold at once for cash, if the loaned money is not promptly returned on any day that it is called for, and small loans seldom lie, on an average, over three or four days. A broker having $50,000 or $100,000 on hand Saturday, will often loan it over Sunday at 3 to 6 per cent if Government Bonds or other securities are left in its place. The best short time (60 to 90 days) double name or endorsed notes, sell at rates to bring double the interest of call loans; while unendorsed notes of men worth their tens and scores of thousands of dollars, running two to six months, are sold at rates that will make them yield 15 to 20 per cent interest. The banks, being limited by law to 7 per cent, lend money on well endorsed notes, of three months or less, to their customers who constantly have balances deposited with them. Our Western friends, who so often send to us to borrow some of this cheap money for them, will thus see that for notes running beyond three months, the rates are quite as dear in New York as anywhere else. People keep their money moving here, and only lend temporary balances at low rates, on call, with cash collaterals as security. Certain Government and State Bonds are taken and held at lower rates of interest, because they always bring cash when wanted, or can be used as collaterals.

Large Yield of Small Grains.—Daniel Witter, Esq., of Denver, Colorado, sends us a statement of T. G. Anderson, the owner of the acre of oats to which the prize of the Colorado Agricultural Society was awarded. Common black oats were sown broadcast, being simply worked in with a 7-toothed cultivator. The ground was not even plowed, and the yield was ninety bushels, sworn to. He sends also a statement of the crop of wheat which did *not* take the premium. Sixty-five and one-half bushels of "Arnautka" wheat were raised upon one acre. This variety is hard and flinty, and not being considered worthy to compete with better kinds, no premium was given for the crop.

Single or Double Lines in Plowing.—L. N. Hager, of Nevada, writes: "This thing of single lines on a farm team is a humbug. I have tried single, double, and side lines, with heads tied together, and have settled down to using double lines altogether except when using four or more mules or horses in one team. The jockey stick on a high spirited horse is a nuisance; and no man can do good harrowing with a single line and a contrary horse on the off-side. As to right or left-handed plows, it is six of one and half a dozen of the other."

More about Chess.—J. K. Hiner, Anderson Co., Kas., positively asserts that when heads of wheat are bent down and covered with hay, or other material having no chess in it, chess will spring from the grain. We have no doubt Mr. H. thinks so, but we do not.

A Horse Saved.—Jas. R. Bruner, Litchfield, Ky., writes: "In looking over the Sept. 'Walks and Talks on the Farm,' I noticed that the writer speaks of a stick in a horse's throat. I read it to my brother, who had a mare which he said had had the sore mouth, or sore tongue, for nearly three weeks, but he knew not what to do for it. I asked him if the description was applicable to his mare, and he said that a portion of it was; so he went this evening and examined as directed by the writer, and found a corn cob, about 1 inch in diameter, and 2⅞ inches in length, fast in her mouth, cross-wise, just behind her teeth, at the root of her tongue. With some difficulty he removed the cob, and she probably will be well in a very short time. He said that he never should have thought of the cause but for this article.

Corn at 50c; Potatoes at 25c.—Levi Clark, St. Joseph, Mo., inquires in regard to the relative economy of using corn or potatoes for fattening hogs—corn being worth 50c. per bushel and potatoes 25c. According to an average of the best analyses we can get, dry corn contains about 12 per cent of water; potatoes 75 per cent. Corn contains 62 per cent of starch, fat, gum and sugar—all digestible and fat-producing; potatoes contain 17 per cent; corn contains about 9 per cent of albuminous, commonly called nutritious substances; potatoes contain about 3 per cent. The ratio of albuminous to fat-producing matter in corn is about 1 to 7; in potatoes about 1 to 6, giving the advantage to the *dry* substance of potatoes over the dry substance of corn. A legal bushel of potatoes in Missouri is 60 pounds. This contains only 15 pounds of dry substance, the rest (75 per cent) is water. A bushel of shelled corn in Missouri is 56 lbs., of which over 49 lbs. is dry substance, nearly 7 lbs. of naturally dry corn being water. At the prices above given, and according to the analyses consulted, one buys for the same money in the shape of corn 3½ lbs. of nutriment and 17½ lbs. of fat-producing matter; in the shape of potatoes, 2½ lbs. of the one and 12½ lbs. of the other. To make them equally economical for feed when corn is worth 50c. per bushel of 56 lbs., potatoes should sell for no more than 17c., and probably less, judging by their analyses. However, the best analytical results are not a perfectly sure guide, though they do not lead us far astray. The digestive powers of different animals vary greatly, and the form in which nutriment is presented is important, and this makes a difference in value which can only be ascertained by patient experimental research. Thus, cooked potatoes present the nutriment in a more digestible form than uncooked corn, and ground corn is more digestible than raw potatoes.

Sign Your Name.—At the commencement of a new volume, when we have many new readers, it is necessary to repeat the request that all letters should contain the writer's signature. No one is under any obligation to notice an anonymous letter, and with our correspondence it is frequently to the disadvantage of the writer if the name is not signed. We do not take up space in the paper to publish answers which are of interest to only one person. We have several inquiries which we should willingly answer by mail had the writer seen fit to give his name; as it is, they must go into the waste basket. Some one in Missouri sent a lot of greenhouse plants for name: the reply interested him alone, but as he withheld his name, we did nothing about them. As we have not space to print nearly all that we should like to, matters of private interest must give place to such as are likely to be useful to a number of readers.

Fruit in Michigan.—S. J. Fowler, Hillsdale, says: "Grape growing has just begun in this vicinity, and it promises entire success. My vines—a dozen varieties—have all made a vigorous growth during the past season. Three-year-old Delawares, Concords, and Hartfords, have borne abundantly, with no signs of any disease about the vines or fruit. Rogers' No. 15 and Dianas grew rampantly, but bore only straggling clusters of good fruit. Rogers' No. 4 yielded compact clusters of excellent grapes. The success of the Iona is yet a little questionable. The fruit is of first quality, and abundant upon old vines, but young vines are not very hardy. The Kittatinny is the choicest blackberry yet raised here.

Hard on the "Farmers' Club."—The talkers at the N. Y. Farmers' Club have been bewailing the loss to the country of a million of bushels of corn, which they imagine to have been due to the advocacy by some of the members of shallow plowing. The deep plowers pitched into the shallow ones, and told them how very wrong and wicked they had been to preach shallow plowing, and cause the loss of so much corn in the Southern States. The American Farmer, Baltimore, Md., irreverently says that the corn was lost by the drouth, and not by shallow plowing, and that "the people who are supposed to have suffered especially by the drought, have not let up their plows the ninety-ninth part of a hair for any influence the Club has had upon them. They know very little, and care much less about the utterances of the notional gentlemen who hold forth at their weekly meeting."

Plum on the Peach.—"J. T. S." Hannibal, Mo. The plum has sometimes been worked on the peach, and on sandy soils the trees have succeeded, but the process is not one that is to be commended as the results are uncertain. We do not advise working any trees on "small pieces of the root." It is generally condemned by good cultivators.

Influence of the Stock upon the Graft.—Mr. H. Conklin, Morristown (no State), grafted two choke pear trees with cions from the Beurré Bosc all from the same tree. One of the grafted trees produces regular Beurré Bosc pears, and the other, fruit of different shape and unfit to eat. The drawings of the two fruits sent are quite unlike.

Cauliflower Seed.—S. N. Blakeley, Glenwood, N. Y. Cauliflower seed requires more care than private growers like to give it, and it is safer to buy of those who make a business of raising it. The seed is sown late, and the partly grown plants are set in a roofed pit or frame, where they are protected until spring, when they are set out, come into flower and produce seed.

Please Speak of the German Edition.—Some of our readers may not know that an edition of this paper has long been printed in the German language. It contains the engravings and principal articles of the English edition, and, in addition, a special Department, edited by Hon. Frederick Münch, a practical cultivator of Missouri. Though this German paper has a far greater circulation than any other similar journal, there are tens of thousands of new comers from Germany who would doubtless be profited by its perusal. The terms are the same as for the English edition, and clubs may contain names for either or both editions.

Notices of Books Received.

German Handwriting, F. Abn. N. Y.: E. Steiger.

Manual of the German Language, by W. Grauert. N. Y.: E. Steiger.

Elements of Astronomy, by Elias Loomis, L.L.D. N. Y.: Harper & Brothers. 8vo., pp. 224. $2.

The Philosophy of Teaching. The Teacher, the Pupil, and the School, by Nathaniel Sands. N. Y.: Harpers.

Handbook of Chemistry for School and Home Use, by W. J. Rolfe and W. J. Gillet. Boston: Woolworth, Ainsworth & Co., who also publish

Handbook of Natural Philosophy. By the same authors.

The Polar World.—A popular description of Man and Nature in the Arctic and Antarctic regions of the Globe. By Dr. G. Hartig, N. Y: Harper & Bros., pp. 486, 8vo; $3.75. This work presents at one view the peculiarities of polar life and condenses in a single volume the observations of many different explorers. The American editor has added a chapter on Alaska and another which embodies Capt. Hall's experience among the Esquimaux. The work is abundantly and beautifully illustrated.

Wild Sports of the World.—A book of Natural History and Adventure. By James Greenwood. N. Y.: Harper & Bros., pp. 474, 12mo; $2.50. This is a capital work for boys for whom stories of wild animals always have a great charm. The author has collected together stories of the great hunters and gives us interesting accounts of the chase of wild animals from the elephant to the fox, and illustrated these with engravings.

Haydn's Dictionary of Dates, Relating to all Ages and Nations, for Universal Reference. Edited by Benjamin Vincent, and revised for the use of American Readers. N. Y.: Harper & Brother, pp. 541, 800; $5. This is a condensed cyclopedia of important events in the world's history and while it is easy to point out many omissions it would be difficult to find a work so useful to both writer and reader.

Life of Daniel Webster, by George Ticknor Curtis, one of his Literary Executors. N. Y.: D. Appleton & Co., pp. 589, 8vo. The Appletons have produced this work in a style worthy of the subject and the author.

Lost in the Jungle.—Narrated for Young People, by Paul du Chaillu. N. Y.: Harper & Bros., pp. 260, 12mo.—$1.75. The celebrated African traveler, Paul du Chaillu, always interests the young people by his lectures and now he has put some of his adventures in a book form for them. It is well illustrated.

Rhetoric.—A Text-Book, designed for use in Schools and Colleges and for Private study. By Rev. E. O. Haven, D. D., L.L.D., N. Y.: Harper & Bros., pp. 381, 12mo. $1.50. The author, who was for some years president of the University of Michigan, has invested his subject with much interest by the use of judiciously selected examples.

Trees, Plants and Flowers—Where and how they grow, a familiar history of the Vegetable Kingdom. Philadelphia: J. B. Lippincott & Co., pp. 140, 12mo. $1.00.

We cannot regard this as a successful attempt to popularize botany.

Washington's Words to Intending English Emigrants to America. With an introduction and Appendix by Elihu Burrit. London: Sampson Low, Son & Marston, pp. 112, 12mo. Mr. Burrit is interested in the International Land and Labor Agency, Birmingham, which is intended to aid the English emigrant, and this little work is published with the view of affording compact information in respect to the various States. The letter of Washington written to Sir John Sinclair in 1796, gives his views of the few States in existence at that early date, and Mr. Burrit gives his own impressions of these and others.

Old Testament Shadows of New Testament Truths.—By Lyman Abbott, author of Jesus of Nazareth, his life and teachings, etc., N.Y.: Harper & Bros., pp. 213. Crown 4to. Beautifully executed in press work, binding, and engraving. The illustrations are from designs by Doré and others.

Odes and Epodes of Horace.—A metrical translation into English with Introduction and commentaries by Lord Lytton, N. Y.: Harper & Bros., pp. 521, 12mo.

Bound to John Company, or the adventures and misadventures of Robert Ainsleigh. Harpers. Paper. 75 cents

Trees and Rabbits.—A. S. Proctor, Peoria Co., Ill., sends the following, which, though not altogether new, is worth repeating at this time: "Cut straight corn-stalks, long enough to reach higher than the rabbits can; stick them into the ground around the tree, and tie the top with twine. The protection is perfect; it never fails. This plan is very expeditious, and costs nothing but a little labor and twine."

Wisconsin Horticultural Society.—The Annual Meeting will be held at Madison, on the first Tuesday in February, and continue for two days. The Secretary, O. S. Willey, sets a good example to other secretaries of such societies. We received his announcement of the meeting in December, and extract from it the following: "First, we don't want any one to say he did not have a timely notice. Second, we want every body to know that there is a Wisconsin State Horticultural Society, and that its members, and all interested in fruit growing, either as a luxury or profession, are invited to be present and participate in its discussions, or at least to add their mite by way of encouragement by their presence. Third, we want any one who has raised any fruit, and still has it on hand, to have this timely notice, that they may have some of their fruit still farther kept, and send or bring such samples as will add a share of interest to the occasion," etc.

Hedging.—An article upon Hedges for the West, by our Iowa contributor is unavoidably put over to another month. It is by a practical hedge-grower and will answer several who have inquiried about hedges.

European Larch.—Most nurseries keep these in moderate supply. Those who have seedlings in quantity should advertise.

The Kittatinny.—This Blackberry seems to do splendidly in Iowa, to judge from a photograph of a cluster sent by B. Larned of Eddysville.

Opium.—G. D. Cramer and others. We have no evidence that opium has yet been made in this country. An extract of the poppy plant, a very different thing, was exhibited as opium. This was subjected to analysis, and found variable, and of poor quality. The opium excitement started in Vermont, and its apparent object was the sale of directions for poppy culture. If any one can furnish us reliable information upon the subject we shall be glad to receive it. Opium is not, as many suppose, to be made by pressing the juice from the poppy and evaporating it. It is the dried milky juice which exudes when the unripe seed-vessel of the poppy is carefully scarified. In India each head only yields about two grains, and we doubt if at the present prices of labor and our uncertain climate it can be made to pay. It is, however, a good field for experiments, and we would like to hear of something more reliable than the newspaper accounts heretofore published.

Fine Grapes.—Wm. Hamilton, Gardener for Wm. Hoyt, Stamford, Conn., has been very successful with his vinery. The cluster he sent us attracted much attention and—we are sorry to say it—proved too much for some fingers.

Peaches.—"W. L. S." Currituck Co., N. C. It is customary to plow the orchard after the fruit is gathered and cultivate it as long as weeds grow. We do not see how it can affect the starting in the spring. A mulch put on after the ground is frozen, might retard the buds somewhat, but not much. The buds being exposed to the influence of spring will be apt to start without much reference to the condition of the soil.

Vines in an Orchard.—J. B. asks if we would advise planting grape vines or raspberries in a peach orchard where the trees are 15 feet apart each way. —Decidedly not. Annual hoed crops may be grown and the breadth given to them diminished until the third year, after which they should be stopped and all the ground given up to the trees. Grape vines will be well established about the time the orchard comes into full bearing, and each will be in the way of the other.

Rabbits, Mice and Trees.—Dr. M'Cannell, Adams Co. O., finds that a mixture of asafœtida and soap, painted upon the bark of trees, will preserve them from the attacks of rabbits and mice. Will the Doctor kindly give us the prescription, as he has forgotten to say what proportions he has found best, or the form in which the asafœtida is used.

Swindling the Nurserymen.—A well-known dealer writes: "Last spring, a man in Ohio issued circulars stating he wished to purchase a certain amount of small fruit stock, as he was going into the berry business. He sent these circulars through the country, asking nurserymen to bid for filling the proposals, reserving to himself the right to accept all or any part of the bid. In time an answer came, stating, 'Your proposal has been accepted for a certain amount of stock, to be forwarded to S——, and to draw on the First National Bank of that place for the amount of bill.' All that any one got was a protest from the bank, with costs. I understand he is doing the same this fall, only in other places." We hope that our friend did not purchase his experience at too high a price. Hereafter, he will ask for references of those who order and are unknown to him.

Smoking Plants.—"F. C. S.," Boston. The length of time a plant should be smoked will depend upon the density of the smoke. In half an hour the lice, if not dead, will generally be so stupefied that they will loose their hold, and may be shaken off.

Dwarf June Berry.—Dr. M'C. This variety came from the West, and we look for information concerning it from that quarter. We, as well as others, have the plant on trial, but it has not yet fruited.

Watering and Manure Water.—"R. J. H." writes: "How is a person who has never had experience to teach him to know what amount a moderate quantity of water is, or what is a moderate quantity of manure water?"—The want of "experience" is just our correspondent's trouble, and which he can, with a little patience, overcome. Dust and mud are the two extreme conditions to which the earth in flower pots can be brought, and both, with rare exceptions, must be avoided. A rapidly growing plant will require an amount of water that would ruin a slow growing or a dormant one. Now, no written rules will instruct one just how much water to give a particular plant. The best way is to experiment. More plants are killed by over-watering than by drying up, and it is better for the health of the plant that the soil should get dryish occasionally. As to manure water, use liquid cow manure, diluted so that the water is slightly colored; apply this once a week, and if the plants seem to do well under it, use it twice a week, making it a little stronger if the plants appear to demand it....Fuchsias, except a few winter-flowering ones, are better stored in the cellar for the winter, as they are generally poor parlor plants.

An Erratic Grass.—Daniel Noble, Shairano Co., Wis., sends specimens of Timothy in which the *palets*, or envelopes of the flower, are developed as small leaves about half an inch long. We have seen the same condition in this grass several times before.

The New York Fruit-Growers' Club.—We were informed by an officer of this Club that it had become mortified at its inability to pay its premiums, and had committed *hari-kari*, and made an announcement to that effect. It seems that it was only cut in two, and like a polyp, its separated parts are struggling into individual existence. Nine men and one woman met at the rooms of the American Institute and made an attempt to organize. As all could not be chairmen at once, this portion—which represents the head, as it contains whatever of brains there was in the concern—adjourned to a more favorable season. The tail end has since shown signs of vitality and has called itself—of all things—the "Horticultural Society of New York." Well, there is something in a *name*. We do not observe that any one ever suspected of horticultural knowledge is identified with the movement—but the name looks well in print.

The "Mexican Everbearing" Strawberry.—The Michigan Farmer quoted us triumphantly as endorsing the claims of this variety to be new. We gave its statement the positive denial it deserved, whereupon it follows with a column, the purport of which is, that our opinion is not worth anything either way. The Farmer mistakes greatly if it thinks to draw us into a controversy with it. Abuse will not help the strawberry nor will it hurt us; and the editor of that paper may feel just as badly as he chooses. The question which interests the public is this—Is the "Mexican Everbearing" Strawberry worth growing? To which we answer, if the old Red Alpine is worth growing, that is, for we are unable to see the difference. The inability to see the difference between the "Mexican" and the Red Alpine may be stupidity or it may be an Eastern prejudice, for both these charges are made against those who think them as alike as two white beans. For ourselves, we consider the Alpine and the "Mexican," be they alike or different, as not worth growing. The fruit is small, soft, pasty, and without the flavor we are accustomed to associate with the strawberry, and have no doubt that nine out of ten who should plant either would be sadly disappointed. There are a few who like a fruit of this kind and they will find it in the so-called "Mexican." The names of some persons whom we highly esteem are quoted as stating that the "Mexican" is a distinct variety. Neither of these have ever grown the two sorts together. We know them well enough to be sure, that should they find upon trial that the "Mexican" is not a new variety, they will frankly say so, and should our experience with the two side by side, show the plants in any respect different, we shall admit that our present opinion is not well founded. Mr. B. Hathaway of Little Prairie Ronde, Mich., publishes in the Michigan Farmer and elsewhere the most positive testimony as to the identity of the two sorts. Mr. H. grew the "Mexican" and an Alpine, which he had cultivated for many years, side by side. He says, "And carefully comparing in size, form, flavor or fruits, and in habit of productiveness, there has been no appreciable difference. Had I not set them myself I could not tell them apart." The testimony of so well-known a fruit grower as Mr. Hathaway is worthy the consideration of the Michigan Farmer. The Farmer says: "Why did not the editors of the *Agriculturist* and the *Rural New Yorker* in the convention respond to the remarks of Mr. Meehan? or why not call the attention of Mr. Elliott or Dr. Warder to the identity of the two varieties? Simply because they dare not!" If that conundrum was not answered by its propounder we should say that the only reason we did not do these things—we can't answer for our friend Bragdon—was the perhaps insufficient one, that at the time we were some 30 miles away....Since the foregoing was in type, we notice that Mr. B. Hathaway has written to the Country Gentleman an article giving his experience with the "Mexican." He states that he has the "Mexican" and the Alpine planted together, and that he will give any one $500 who will at any time of the year pick out the plants of the "Mexican." Here is a chance for the Michigan Farmer.

Norway Spruce Hedge.—"G. H. F.," Montgomery Co., Pa. The Norway Spruce can be kept at any desired size by clipping. Cut a young hedge in October, to secure a strong growth, and when the hedge is once well established, prune the young growth in June, and trim again in October to bring it to the desired shape.

Bark Louse.—A. P. Lark, Millersburgh, Pa., sends a twig covered more thickly than we ever before saw with Harris' Bark Louse. Mr. L. says that the whole tree is covered with them, from root to top, and that they even were on the fruit. On this point we have a letter from D. A. Norris, Greenville, Conn.: "In the spring of 1868 I purchased a house and lot; there were about a dozen pear trees on the lot, and one of them (the Duchesse) was badly infested with scale lice. The former owner of the place had been trying for a number of years to get rid of the pests, but could not succeed, and I decided to cut the tree down. I had some painters at work on my house about the first of June, and I thought I would try an experiment; so I took a paint keg and brush and painted that tree from stem to stern (as a sailor would say), covering the leaf buds and everything else with a thick coat of white paint, lead and oil, such as they were painting the outside of my house with. All of my neighbors (and some of them knew very much more about trees than I did) said I had killed the tree. I told them, 'better dead than lousy.' The tree leaved out very well, though some buds couldn't break the crust of paint. It made a good growth of wood, some of the shoots growing from twenty-four to thirty inches. What is better than that, I could find no lice on them. I thought I would say nothing to you about it until I had tried it another season. I have watched it closely this season, and can find nothing on it that has any resemblance to a louse, and I am well satisfied that I have exterminated them. Some of my neighbors are troubled with them, and they say they 'shall try the paint next season.' The tree which I painted was seven or eight years old, and has never fruited until this year, when it bore one pear. I am in hopes to get a good crop from it next year."—A tree in the condition of Mr. Lark's is fit for no other use than some such heroic experiment as here detailed. If it is killed under the treatment, never mind, as it should be cut down if it cannot be cured. It is likely that linseed oil, without the paint, would do as well. We have no doubt that soap, made thin enough to work, would have answered as well as the paint, if applied early in June, just before the insects hatch. The experiment is interesting as showing how much abuse a tree will stand.

New Vegetables are described by J. J. H. Gregory and others in the Horticultural Annual for 1870.

Treatment of Land for Corn.—"C. H. S." asks the best way to prepare a neglected, white clayey soil for corn. He has little manure. It is poor policy to winter-fallow for corn usually. Heavy clay lands are

however, often benefited by it.—If your white clayey soil has a good sod, it would not be best to disturb it until spring. If the sod is light, plow it this fall, lapping the furrows, and liming. The frost and lime will work through the winter. Haul out manure when the ground is frozen, leave it in as large heaps as you can, and spread with the fork. At corn-planting time, spread the manure, and cross-plow, going perhaps an inch deeper, than you plowed in the fall. This is to bring up any lime that may have worked down to the bottom of the furrow.—Make all the manure you can. Look out for all sorts of wastes of factories, of slaughter-houses (the blood, hair, bristles, entrails—everything), the wastes of tanneries, etc., dead animals, leached ashes,—all sorts of things that you know are good, and that you can have for the hauling or for a low price,—and keep your compost heap growing all winter. You can cut swamp-grass, haul leaves from the woods, and dig muck. Spend as much time making manure this winter as you will in plowing, planting, hoeing, and harvesting the corn, and you will be able to manure the whole ten acres, and your interest will be easily paid if corn is worth half $1.25 per bushel.

Coal Tar Preserving Wooden Drains.—L. M. Hager, of Nevada, is using lumber for making underdrains, as tiles cost him three times as much as the lumber, and writes to know the best method of saturating the lumber with gas tar. We have had no experience in the matter. Should be glad to hear from those who have. Our opinion is, that the use of coal or gas tar for such purposes has been greatly over-rated. It is certainly not a water-proof, or even a water-repellant substance, but mixes quite readily with water. Under not a few conditions coal tar appears to promote decay in wood, etc., rather than to check it. There is a good deal of condensed wisdom in a short article in the *American Agricultural Annual* for 1869 on this subject. And we think a much better application to wooden drains would be roofing pitch, dissolved while warm, in the cheap, light oils (benzine or naptha). This forms a black varnish, a liquid which would penetrate the pores, and is entirely free from pyroligneous acid and other substances which are soluble in or have an attraction for water. The light oil soon evaporates, leaving the pitch. It is very inflammable and must be handled with care. The best way to do it would probably be to make a steam-tight chest, in which the strips could be placed and covered with the black varnish. A partial exhaustion of the air would cause the thorough penetration of the liquid into the pores of the wood. Soaking a day or two would be well, and simple painting with it would doubtless have less, but good, effect.

Clover for Arkansas.—E. G. Collier, Ark. We have no doubt white clover would do very well with you. Sowed in the fall it would grow through the winter and give abundant pasturage in spring, when it would seed itself for the next crop and probably dry up and die during the heats of your summer. The seed is rather expensive, but if it were evenly distributed, a pound to the acre would probably make a good stand the second spring. Red Clover would probably fail; though sown in the early autumn it might make a crop on good land, before the hot weather came on the next year.

What Bull shall I Buy?—Mr. A. Desendorf, Montgomery Co., N. Y., writes in substance as follows: "I have a dairy of common cows and wish to improve them by crossing with either the Ayrshire or Shorthorns. What I want is an increase in the quantity of milk; as I sell the milk to a cheese factory, quality is of minor importance to quantity; from which breed can I get the most milk? I have about 150 acres of cleared land, rich, and much of it underdrained that has kept a dairy for some twenty years or more and which will keep *well* forty milch cows, four horses and one yoke of cattle, and will besides allow of the raising of some young stock. —Upon the same land can I keep more or less than forty Ayrshires, or more or less than forty Shorthorns? The Shorthorns being larger will they consume more food? I make my money out of my cows, and have given them good feed, extra care, and my exclusive attention. Would you then advise me to expend $150 for an Ayrshire, or $300 for a Shorthorn, or would you disapprove of such improvements, and recommend none but native cows for the dairy?"—To answer the last question first; we must most earnestly recommend the use of a thorough-bred bull on all dairy farms. Whether it should be an Ayrshire or a Shorthorn, depends very much on whether the dairyman wishes to turn off some fat cows every year to the butcher, or whether he intends to keep his cows till they are used up, and then sell them for about what they are worth for their hides. If he adopts the latter course, we should recommend the use of an Ayrshire rather than the Shorthorn bull. The Ayrshires have been bred exclusively for milk, and will probably yield a greater quantity for the food consumed than any other breed. On the other hand, if he proposes to sell beef as well as cheese and butter, we would advocate the use of a Shorthorn or Devon bull. Provided in all cases that the bull be *thorough-bred*. To carry out the latter system to the best advantage, we must adopt a higher order of feeding than when the only object is milk. We want cows that will eat a large amount of food. This is of the very first importance. An animal that will not eat freely should be rejected. The Shorthorns are great eaters. If they run to milk they give a large quantity of it. If they have a tendency to fatten, they fatten with great rapidity. The objection to them as dairy cows is, that you are not *sure* whether they will prove to be great milkers or great feeders, or half and half. The remedy is to feed liberally at all times, and if the cows are good milkers they will be very good ones, and if not, they will fatten rapidly, and can be disposed of to good advantage as beef. With a dairy of forty cows, a dozen or so of the best heifer calves should be raised each year, and ten or a dozen cows fattened each winter to be sold in the spring, when the beef commands a very high price. We know no reason why Mr. D. cannot keep as many good Ayrshires on his farm as native cows. But he could not keep to advantage as many Shorthorns. A large Shorthorn cow, if a good one, will eat more food than an Ayrshire. The better either of them are, the more will they eat. If he keeps Shorthorns, on the system proposed, he will not receive as much money from the cheese factory as if he kept Ayrshires or natives. But it is for him to decide whether half a dozen or more fat cows sold every spring to the butcher, will not make up for the deficiency. On the whole, we would say, if he has high-priced land and proposes to adopt high farming, take the Shorthorn bull; but if he proposes to devote his farm and the cows solely to the production of milk, take the Ayrshire.

New York State Poultry Society.—The finest exhibition which had ever been our pleasure to witness was made by this Society last March. Another show was held at the same place, the Empire Skating Rink, New York City. This eclipsed the former in almost every department, and was a triumph for the Society. The great feature of the show was Asiatic fowls, and though we were sorry to miss some of the stock to which the highest honors were awarded last spring, and their progeny, yet the display of Buff and Partridge Cochins, Light and Dark Brahmas, was magnificent, both in numbers and quality. The exhibition was strong in the French class, the Houdans predominating in numbers, and receiving high praises from their breeders for hardiness. Creve Cœurs were in pretty good force also, and showed finely for weight; and there were fine specimens of La Fleche. Dorkings are a very attractive breed to us, especially the Grays, and we wish they were more fashionable. The delicacy which they have sometimes exhibited here is, in great part, due to close breeding, and certainly their good qualities are enough to make it worth while to breed them with an especial view to an improvement in constitution. There were many good coops of both Gray and White. Spanish made a good show also, but the Hamburgh class eclipsed them; and for perfection of feather and beauty of form, the prize birds are certainly models. The class of Poland and other crested breeds was represented by many and good coops, but several of the best lacked beauty in not being fully feathered, especially in the crests. The season was more favorable for a fall display of Games than in March, and there was a good show. It strikes us, however, that there should have been a better show made, and more competition. The abuse of this fowl should not condemn it—and to any one who can keep but one breed of fowls, none offer more attractions than some of the varieties of this thorough-bred race. Perfection of form, beauty of feather, style, hardiness, intelligence and gallantry, are combined with the useful qualities of being the best of all fowls for the table, and second to none as layers, steady setters, and good mothers. They can not well be kept with other fowls, and the cocks must be kept apart. The class of Bantams contained not only some of the most beautiful birds in form and feather in the show, but the variety was great. The Turkeys were of commendable quality, the Bronze ones having, in general, very good size. The winner of the first prize last spring has increased his avoirdupois to 42 pounds. The fine Crested turkey cock, belonging to the Secretary, Mr. Gavit, was greatly admired; and if it be found that he will impress this beautiful peculiarity upon his progeny, we have a right to expect, with confidence, that a new and valuable breed will soon be established. The show of Ducks was confined, so far as we observed, to the "Rouen," (properly, *Roan*,) Aylesbury, Cayuga, Wild Mallard, Crested, and Wood breeds. The first two breeds being shown in large numbers, and of extraordinary size and weight for this country. We are glad to mark rapid improvement in breeding these useful birds, and hope it may continue. The same may be said of Geese. We have never yet bred so fine Toulouse or Bremen geese as we can import. That department of the show devoted to pet animals was well filled with an interesting collection of Ponies and Dogs. There were also Rabbits of several breeds, a variety of Cats, and several Deer; a performing Dog, and other curious and interesting things. Dr. Slack's Troutdale fish ponds were represented by several huge tanks of trout, a number of hatching boxes, with eggs, in which the young trout could be seen, and a model of Ainsworth's breeding race. There were, besides, on exhibition, choice paintings of domestic and wild fowls, and their young, of incubators, of dressed capons, of eggs, of various kinds of folding coops, etc.

The exhibitors were principally from the States of New York, New Jersey, Pennsylvania, and New England, though several fine coops came from Ohio. The season was a favorable one for showing fowls in good condition, and for keeping them in good health, as very few were sick. A severe snow storm, bad traveling, and intensely cold weather caused a very meagre attendance, and the Society must come out with a depleted treasury.

Obituary.—Mr. Richard L. Allen.

A brief note announced that Mr. Allen's death occurred at Stockholm, Sweden, on Sept. 22. He had been traveling with his family in Europe for nearly a year and a half, and was on his way to Russia, intending to pass the winter in Southern Europe, Egypt and Palestine. Mr. Allen was born October, 1803, in Hampden County, Mass., educated at Westfield, in that State, and in early manhood engaged in mercantile pursuits in New York. Relinquishing this, he entered into literary pursuits and the study of law in Baltimore, but was compelled by declining health to return to active life in 1832. Coming into possession of a large tract of woodland on the Niagara River, he zealously engaged in clearing the forest and bringing the soil into cultivation, and also in breeding various kinds of improved stock, of which he was a great admirer, and an excellent judge. In 1842, he became associated with his next eldest brother, Mr. A. B. Allen, in establishing the *American Agriculturist*, and continued a close connection with it as contributor, co-editor, or publisher, for thirteen years, until its final sale to Mr. Judd, who had been its conducting editor for about three years. Mr. Allen was, in this and other ways, one of the earliest and most efficient promoters of agricultural improvement in this country. His "*American Farm Book*," of 325 pages, was, without doubt, the most practical, the best arranged, the most useful, and the most able work of its kind in that day, if indeed it has been excelled up to this time, and its sale has been commensurate with its merits. (A new edition, edited by his brother, Hon. L. F. Allen, and brought up to the present time, has been recently issued.) This was followed by another useful and successful volume on the "Diseases of Domestic Animals." The circulation of the *American Agriculturist* created a demand for improved implements, which could not be supplied by the manufacturing facilities of the time, and to meet this want, the two brothers, on Jan. 1st, 1847, opened an Agricultural Implement Warehouse in Water Street, New York, under the name of A. B. Allen & Co. To this was soon added extensive Agricultural Implement Works in Brooklyn; both establishments are still carried on by R. H. Allen, Esq., a son of the deceased.

Aside from the subject of agriculture, on which he has so ably written, Mr. Allen was a man of various acquirements. His tastes were those of a student and literary man, all his life; though until his gradual withdrawal from more active commercial pursuits, his large and continually increasing business allowed him little time for their indulgence. To a love of history and the belles-lettres, he added also that of science and art; and notwithstanding a faithful attention to his business duties, he found time to keep well up with the best publications of the day. He traveled extensively in his own country before embarking for Europe; and few travelers visit foreign countries better prepared to observe with discrimination, and enjoy with zest and appreciation, whatever is of social, political, economic or historical interest. As a matter of course, he viewed with an intelligent and appreciative eye, everything relating to agriculture and its kindred subjects which fell in his way. Mr. Allen was of an uncommonly amiable disposition, with pleasing, winning manners—erect and noble in person, active and youthful for his years. He was pleasing, intelligent, and instructive in conversation; and in all family and friendly relations, loving and beloved. He was a large owner of real estate at Manitowoc, Wis., and the local press there speak of his acts of unostentatious beneficence, of his liberality to the cause of education, to Churches and Sunday Schools, and for leniency towards worthy debtors. He was, and had been for years, a humble, consistent, and enlightened Christian: and was an elder in the Presbyterian church for some time previous to his death, as his father and more remote ancestors had been before him. In the church, in society, and in business, he has left a void not easily filled.

Bee Notes.—*By M. Quinby.*

Apiary for January.—Probably there was never a time when a really thrifty man, in any business, could find absolutely nothing to do; and probably that bee-keeper remains to be found who can build high the roaring fire, heavily heap the board of good cheer, and abandoning himself to the enjoyment of the summer's garnered fruits, say, "Now, at least, has come a time when my charge demands not even the slightest care." Remember the enemies of bees are abroad, creeping under the snow, making for themselves passages, it may be, into your hives, and may be at this moment taking up their permanent winter residences in the very strongholds of your pets. In cold weather, bees gather into as compact a mass as possible, even the cells of the combs in the interior of the cluster are mostly filled. Now, if the hives are outdoors and the weather very cold, the honey in one locality is soon consumed, and the bees must reach it in other quarters or die. But there is continually arising from a mass of bees considerable moisture. Unless carried off, it accumulates and freezes on the combs, and a bee would die if it moved under such circumstances. Even if the moisture escapes by ventilation, and there is no passage from one part of the hive to another, except around the chilling edges of the combs, the bees will often freeze, even with plenty of honey in the hive. Hence the necessity, especially where movable frames are used, of seeing that there are openings near the middle of the combs. The cross-stick in box-hives generally cause holes to be left in building, which will answer for them. When the weather continues cold for three weeks or more at a time, bees outdoors should be brought in and thoroughly warmed, so that the frost about them will melt and the combs dry. Let it be done in a dark room or in the evening. Frequent warm spells occur in this latitude (Central N. Y.) which generally render this unnecessary. At such time, if the ground is bare or the snow covered with a hard crust, bees may and ought to fly, but if a light snow is on the ground use every means to prevent it. A bee can alight on an icy crust and rise again, but in a soft snow it sinks to die. Careful shading helps keep them back. Straw hives which present a thick mass of non-conducting material are better than wooden ones under such circumstances. Avoid all unnecessary disturbance. If the hives are covered with snow, let them alone. They will do well if properly cared for to begin with. When there is but little snow, sweep away occasionally and clear the air-passages of dead bees. If a warm day loosens the hives, raise them and sweep the bottom boards. Protect from cold winds as much as possible. A warm, south-eastern exposure is best for an apiary. A correspondent placed his hives near together in the fall, and packed straw all about them, allowing it to project about 14 inches in front from between the hives. This would break the force of the wind. This is the month when thousands of weak stocks will freeze to death, victims of costly carelessness. The presence of honey remote from the cluster will not avail them. There should be an inch hole about one-third of the distance from the bottom of the front side of the hive to the top. This will help if the bottom should chance to be closed. Bees flying out might be saved sometimes if there is a short passage to the cluster inside without having to crawl through the frosty space from the bottom up. The presence of mice may be known by their nibblings on the bottom. Trap them; poison might be communicated to the honey. Tall hives for outdoor wintering are better than low, flat ones; they bring bees and honey in the most favorable relative positions—honey above, bees below. The bees can reach the honey by simply crawling up—very different from going from comb to comb; besides, warmth rises from the bees and prevents frost from accumulating over them. It is objected to such hives that they do not afford the requisite space for boxes. Perhaps the best form for the box-hive is a medium between the two extremes, say a foot square in the clear by 14 inches high. Bees in doors must be visited to see that all is right. Keep the trap set for vermin. The room must be dark and dry, and the temperature always a few degrees above the freezing point. Sprinkle lime on the floor, to neutralize any disagreeable odor from dead bees. Bees in this latitude do best housed; farther South a little is gained in their earlier breeding by leaving them out, a matter of much importance in the spring. Winter is the time for preparing hives and boxes for another year. Remember that the longer hives are painted before using, the better.

Bee-Keepers' Convention.—The bee-keepers of the West have been holding conventions, and why should not we? Every interest must organize or fall behind. We need, for the successful prosecution of honey-raising, a rapid communication of all that observation and experience are every day bringing to light. Newspapers help, but they are not sufficient. A thousand points of interest and value would be brought out in a convention which never would find their way to the newspapers. Many observe who but rarely tell what they see though the press; but conventions bring out details. There is nothing like personal intercourse to elicit truth. I would suggest the calling of a convention—say in February or March—to meet at a convenient point, with a view to permanent organization. Let us hear from others.

Patents.—My uncompromising hostility to every sort of patent hive is known. I am glad to see resistance to them anywhere, not because they are always worthless, but because, generally speaking, they have been one unmitigated swindle. But let us have a care lest this hostility to patents blind us to real merit. The old box-hive, I think, is destined to be superseded by movable frames in some form, and new and valuable devices may be invented and patented. But as to the bevel guide for straight combs, about which so much is said, don't be swindled into paying for the right of using it. A friend of mine in St. Lawrence County recently paid $25 for what no man would have troubled him for using before. The same common sense that makes a good farmer or merchant will usually enable a man to steer clear of these humbugs and make bee-keeping a success.

Horse Papers for Farmers. No. 1.

BY A SPECIAL CONTRIBUTOR.

It seems to me that the Horse question needs to be presented to farmers somewhat differently from the manner in which most of the excellent works on the subject set it forth; for, while those who make a special business of horse breeding, and even those who raise one or two colts a year for sale, are most benefited by the instructions contained in these works; they are not suited to all the wants of a farmer who regards a horse only as a part of the outfit of his business, or as a means of recreation,—who never sells a horse and would be glad never to buy one,—raising such as he wants and wearing them out in his own service.

I like to think of this sort of relationship between a farmer and his family, and the horses of the farm. It implies an affectionate fondness for the faithful animals which ensures their kind and considerate treatment, and the cultivation of an interest in them, which is one of the best parts of the education of a farmer's children, and which will do more than anything else to attach them to their homes and to an occupation about which such interests cluster. Oxen—good natured dumb beasts though they are—are not especially lovable, and they always suggest the coming butcher; cows are better, but they are bought and sold without much regard to anything but dollars and cents; while the smaller animals and the poultry usually finish their career within a year or so. A horse on the other hand, which has been raised on the farm and ends his days in his breeder's possession, becomes almost a member of the family, and may follow its fortunes for a quarter of a century—growing up with the children and connecting himself throughout their lives with their most interesting reminiscences of childhood.

Taking this view of the subject, every farmer who is a farmer not alone from necessity, but from choice as well, should endeavor to have one or more horses that are fully identified with his farm *as a home.* He should raise them himself and should never fix a price on them for a dealer, nor regard them so much a part of his commercial stock, as belonging to the permanent fixtures of his establishment.

Shortly after I moved into my present neighborhood, a few years ago, I hired a neighbor to break up a piece of sod for me. His team was a pair of oxen with a horse on the lead. As they swung into my barn-yard from a side road, my attention was immediately attracted by the horse. As I walked towards him with an interested look, his owner jumped down out of the cart and came forward with a pleased air and asked what I thought of him. I eyed him carefully over, wondering how such a horse ever came to lead a pair of oxen, for he seemed to be in the prime of life and had better points than many a thousand-dollar nag that I had seen in the city. His legs were fine and free from puffing, his ears were thin, well-shaped and active, and the whole air of his head was perfect. I followed him into the field and watched his work. He stepped off in a brisk knowing way, without any fuss, but with a perfect business-like gait, tossing his head now and then as though indignant at having to keep pace with oxen. As I was in want of a horse, I watched him more closely than I should otherwise have done, even with his decided attractions, and at length sounded my neighbor to get his opinion of him. He was loud in his praise, and, I began to think, was paving the way for a large price. Finally I asked his age and was referred to his mouth, when I found to my great surprise, that he was a very old horse; too old for buying and selling to be thought of. However, to carry out the joke, I asked, "how much will you take for him?" "There ain't money enough on this farm to buy that horse,—that horse ain't never ben sold and he ain't agoin' to be; my father raised that horse from a colt and he raised his mother before him. He was foalded twenty-eight year ago this month, and when the women folks hitches him up to go to town, it's jest all they can do sometimes to hold him, now. He was got by a runnin' horse that Buckley's father over here used to keep, and them that's got his colts don't want nothin' better. Accordin' to my my notion, if you want blood any where you want it on a farm. That old horse to-day 'll tend a third more corn 'n any other you can bring, an' he won't never set his foot onto a hill all day long."

Only a few days ago as I was riding at a brisk gallop along the road, I saw that same old horse grazing by the road-side. As I drew near he gave a whinny and—head and tail up—wheeled around and invited me for a run, which my rascal was ready for, and I had for a few minutes, hard work to keep him from it. Finally, the veteran, disgusted, gave a snort and trotted off home like a colt. I have seen him going through town (exerting every muscle to its utmost, but over-straining nothing) leading two yoke of oxen before a load of manure, and I have seen him plodding along to meeting on Sunday before a carry-all full of children, with the air of a steady church-goer, who considered even a lively trot improper. In short, he is exactly the sort of horse that every farmer should have—steady, honest, active, cheerful, intelligent, and perfectly good tempered, ready for work week in and week out, as fit for duty now as when he was seven years old, and as reliable for all kinds of service then as now.

This is no ideal animal that I have imagined for the entertainment of my readers; but a real flesh and blood, chestnut horse, with a white stripe in his face, that I see constantly in my neighbor's team. He cost no more to raise and he costs no more to keep, than the veriest club-footed, "lunkhead" that spends half his life on three legs, and I would rather take my chance of getting a full season's work out of him the coming year than out of any other farm-horse that I know. He may die any day, but until he does die he will be "for duty." He will be game to the very end as is the nature of his wiry tribe. He is not only a real horse, but he is of the type that every farmer may have who will go to work in the right way to get it. The whole secret is explained in my neighbor's

statement that "*if we want blood anywhere, we want it on the farm.*" We hear a great deal now about thorough-bred Jerseys and Shorthorns and Southdowns, and our Walking and Talking friend from whom we learn so much every month convinced us that we must at least have thorough-bred boars. I maintain that the king of all the thorough-breds is the thorough-bred horse. I am glad to have pure-bred males for every kind of stock from cattle to chickens, but the one pure-blooded sire on which I depend not only for profit and economy of food and work, but for intelligence and kindly disposition, and friendship as well, is the thorough-bred horse.

In these Horse Papers I shall endeavor to stem the tide that now sets so strongly in favor of fast-trotters (which are well enough in their way), and to call the attention of my readers to the importance of creating a class of *farm* horses which shall combine as many as possible of the most desirable qualities, with speed enough for all practical purposes; using as a means thereto the Thorough-bred "blood" horse, that is the English race-horse. This is beyond comparison the most purely bred domestic animal in the world, having, in this country no less than in England, a clearly recorded pedigree without flaw or defect, running back a hundred and forty years, and possessing more strongly than any other, the power of transmitting his excellent qualities to his progeny.

Then again, as "the master is half of the horse," I shall try to set forth the duties which the ownership of a fine animal imposes on the farmer; and to suggest improvements in our modes of treating the faithful friends who uncomplainingly do so much for us.

Tim Bunker on Trout Brooks and a Hatching House.

It was one evening in November last year, that Mrs. Bunker lifted her gold-bowed spectacles, laid down the last Agriculturist and said: "Timothy, when did you say Dr. Slasher was coming to look at that Trout brook?"

"I expect him here in the morning, Sally, and I want you to do your best on breakfast by seven o'clock. Let it be broiled chickens and Johnny cake in Hookertown style. The Doctor lives by eating, and he'll come hungry."

"Must be an extraordinary man to live in that way!" said Mrs. Bunker dryly.

You see the way I came to send for the Doctor was this. I hold that what is worth doing at all, is worth doing well. Dr. Slasher had been growing trout some two years, had taken them in the egg, hatched them, fed, reared, and sold them and knew just how the thing was done. Besides he was a well-educated physician and had studied into the science of the business. If a wise man builds a house, he goes to an architect, who makes building his study, for a plan. I wanted to make fish ponds, and a hatching house, that would turn out trout as regularly as a hen-house turns out good broilers by the fourth of July. I knew something about growing chickens, but I had only read of fish raising in books. I had got a trout brook and springs, but I did not know certain, whether they would answer for this purpose or not. I had capital enough, but I did not want to lay out three thousand dollars, on my brook, and then find it was in the wrong place. That would be a good deal like building a dry dock on Hookertown creek.

It was a sharp frosty morning when the Doctor knocked at my door. He was a little chunk of a fellow with bushy whiskers, dark hair and snapping eyes, that could look as far into a pine plank as anybody. Mrs. B's coffee and chickens were discussed and we started for the brook.

"Now," says I, "Doctor, what I want to know of you is just this. Will this brook do to raise trout in, and if so, where will you make the ponds and put up the hatching house?"

"I see trout in the brook," said the Doctor, which is a good indication."

"Yes," said I, "we have always caught trout here, but they may be hatched a good ways up stream, where the springs are."

"No," said the doctor, "Here are the spawning beds," pointing to a long streak of coarse gravel in the bed of the brook, and the trout are now crawling over it, and preparing to deposit their eggs, if they have not already done it."

Sure enough, there were a dozen trout or more, stirring up the gravel with their tails, and having a very lively time.

"Thirty-eight degrees," said the Doctor, pulling the thermometer out of the water. "I thought it was colder, for there is ice formed on the edge of the brook a half inch thick. You must have springs not far above here to keep up the temperature?"

"Yes the swamp above here is full of springs, and one is very large, that smokes like a coal-pit in the coldest weather."

"That is good," said the Doctor; "for if this water is not warm enough, the spring can be easily brought into your hatching house. But I think your brook water, if it does not get below 38° in the coldest weather, will do very well. The hatching period of trout eggs in our brooks is about 120 days, which indicates the average temperature of the water at about 36°. In spring water of 50 degrees they will hatch in 40 days, but I notice that the trout do not lay their eggs in springs, but in the streams below where the water is much colder, and I have thought that colder water would give us stronger and better fish."

"The brook never freezes up," I said, "It was once used to carry a saw-mill, and the pond that was made above would never freeze over hard enough to bear a team."

"How is it about flooding in the spring freshets?" asked the doctor.

"The basin above is very narrow and the brook rises in a swamp about a mile above this. Very little water collects in the basin, and I have never seen it raised more than a foot higher than it is now."

"That is worth a heap of money to you," said he. "There are a great many brooks that have such floods that they tear away all dams that you put upon them. It is impossible to use the main stream for this business, and if used at all, the water must be diverted into small ponds, made at great expense for this purpose. Cheap dams with flumes on the main stream will be safe enough here, and but one small side pond for the small trout will be necessary. The old channels of the brook will be better for the trout than anything you can make for them. The bottom is already lined with stone, and they are covered with water plants full of insects. See the water-cresses grow here luxuriantly, and wherever that plant thrives, you can have trout. How is it about your brook in summer? Does it dry up?"

"It always runs a good stream in the dryest weather, though not perhaps more than a quarter as much as you now see."

"You have now," said the Doctor, "at least 1200 gallons per minute, and a 100 would be enough to do a large business. You have a stream good enough for the business. The next thing is the location of the dams, and flumes."

"Why cannot we use these two old dams that served the saw-mill?" I asked.

"How much fall is there between them?"

"At least 15 feet, and 10 or 12 below."

"That will do grandly," said the Doctor. "Use your upper dam to make a reservoir, put two dams between, making three ponds 150 feet long or more. Put your hatching house just before the lower dam, and take your water for it from the pond above. Then make a small, side pond two or three feet higher than the first pond, and feed it from pond No. 2. Make a sluice-way from this small pond into the first for your spawners to go up. Each pond must have its flume and screens above and below, and be so constructed that you can shut off the water at pleasure, and drain the ponds. You want to control the trout while growing, and be able to capture them at your pleasure, to take the eggs or to kill them for market. This is easily done, if you put your flumes so that you can drain your ponds to the bottom."

"And what is the whole going to cost?" I asked the Doctor solemnly, for the thing began to look big.

"Well," said the Doctor, "I will contract to put you up an establishment here with everything in working order for $2500, and that is much less than it would cost on many brooks. But a good part of your work is already done."

"That is a big pile of money;" said I, "to put into an experiment."

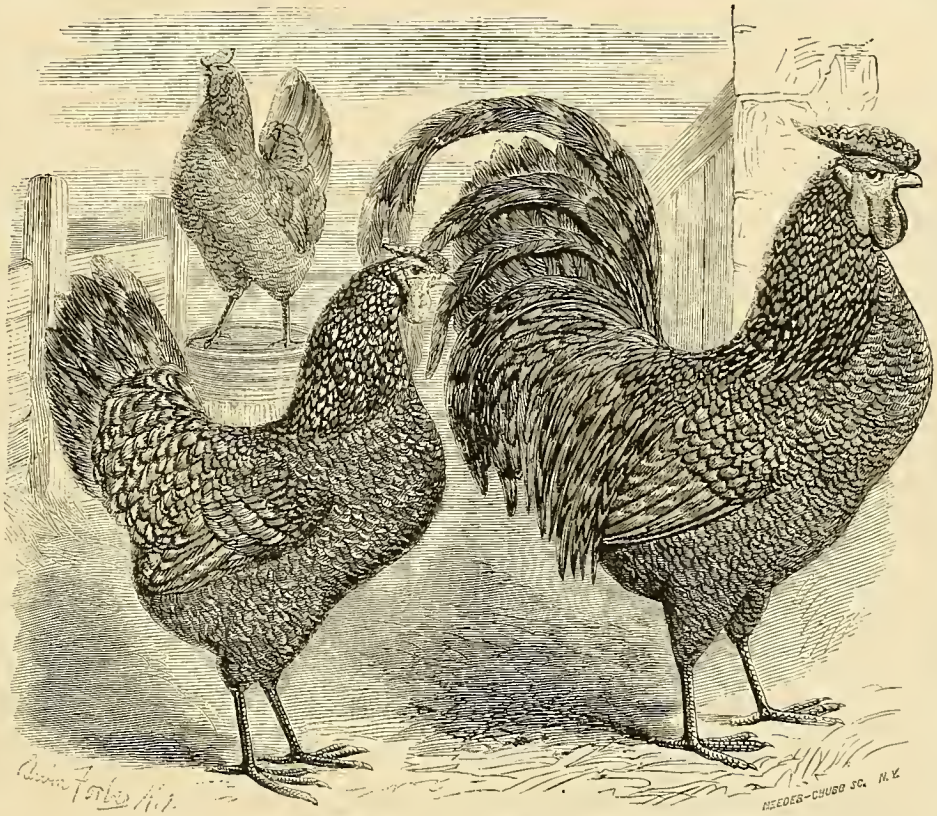
"It is no more an experiment," said the Doctor, "than your raising chickens or pigs. The chickens die more or less every spring, but folks keep on raising them, and I suppose it pays. With right conditions of the water and good attendance I had much rather undertake to raise trout than any domestic animals. They are quite sure not to be hurt by the wet or cold."

I thought over the Doctor's visit through the winter, matured my plans, and in the spring broke ground. I have made five dams and flumes instead of three, and if the trout works succeed as well as they promise I shall put in more. I have visited all the trout-hatching houses I could hear of, and taken advantage of all their improvements, and made some of my own. In all the houses I saw, the hatching boxes were put upon the ground, or but a few inches above it, and the laborious business of examining the eggs and young fish for six hours or more daily had to be attended to on bended knees, or in a stooping posture. This was hard work for nothing. I put the boxes three feet above the floor, which makes this work easy. Coste's boxes, in which the eggs rest upon glass rods, are a great improvement upon gravel. They need no boiling, they are more easily kept clean, the sediment if any remains in the waters falls below the eggs, and they are more rapidly examined and handled. I made the house very thoroughly, laying the walls in cement, and cementing the floor so that neither mouse nor rat can get at the eggs. The water is passed off from the boxes into four-inch tiles beneath the floor, and these are kept grated so that muskrats and other vermin cannot enter the house. How we stocked the ponds, and set the house to hatching eggs, I shall have to tell you in another letter.

Hookertown, Conn., Dec., 15, 1869. Yours to Command, TIMOTHY BUNKER, Esq.

Dominique Fowls.

This is an old-fashioned breed, so to speak, which is probably quite as widely known and has been as well liked as any of the now fashionable ones which are sought after at extraordinary prices, and bred with all the care and skill that man can apply. The Dominique is a breed adapted to all uses, and occupies a position in this country very similar to that which the Dorking does in England, being, however, hardy, and free from that deformity of the Dorking—the fifth toe. The characteristics of the Dominiques may be briefly stated as follows: Good size; aptitude for the table and for market; general excellence as layers, and as winter layers; hardiness, both as fowls and chicks; uniformity of style and plumage. The hens are good setters and mothers. The breed is, besides, remarkable for the degree to which it impresses its character upon the common fowls. There are several breeders in the country who take great pains to maintain it in its perfection, and we are gratified to learn that in Illinois, and perhaps elsewhere at the West, it is held in such esteem that choice breeding birds are held at $40 to $50 a trio.



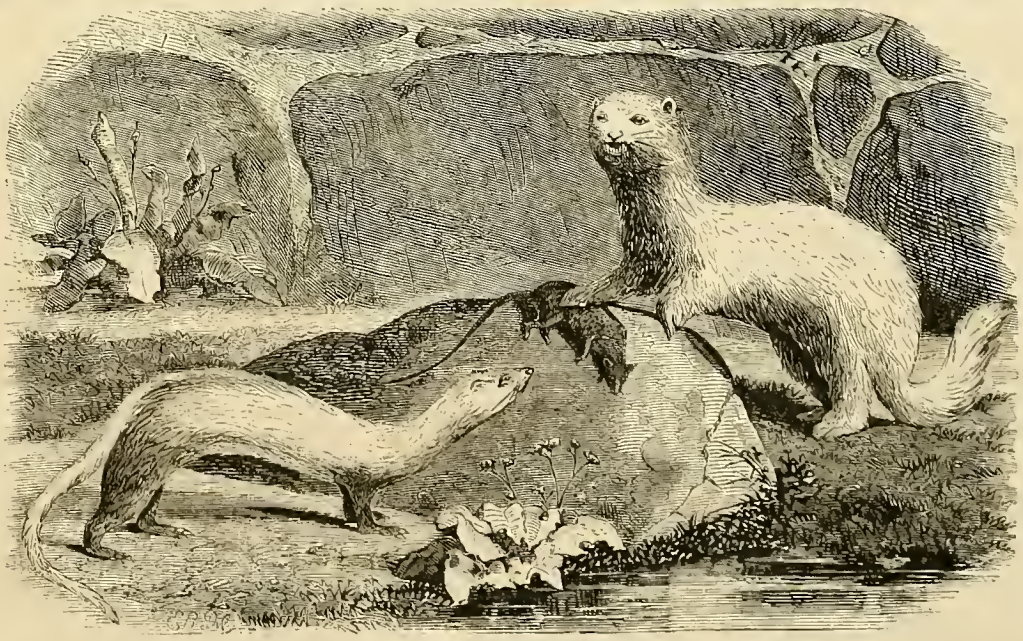
DOMINIQUE FOWLS—PROPERTY OF COL. HENRY HOWLAND, OF CHICAGO.

Both single and rose combs are admissible, but should not be found in the same flocks. The legs are yellow and clean, short and strong. At present the rose-combed variety is the favorite, although in no way superior, unless better bred. The color of the plumage distinguishes the Dominiques from all other fowls with similar characteristics of form. It may be described as bluish-gray — each feather having a light gray ground, barred crosswise with a dark slaty-blue penciling. The cocks have a proud carriage, full neck, and saddle hackle, and full tails, with well-curved sickle feathers. The hens are domestic and active. The cocks should attain a weight of 5 to 7 pounds at eight or nine months old, and at full maturity of 6 to 8 pounds, and hens should weigh 4 to 6 pounds. If bred without regard to size, they run down to 4 pounds for the cocks, and 3 for the hens. This, some otherwise good breeders have allowed, by breeding too close, or too much for brilliancy of color. It deprives the breed of one of its chief recommendations—size and quality as a market fowl—and should not be practiced. We should add that a broad back, and full, deep breast, with short thighs, set wide apart, and well-tucked wings, are essential points. The face should be coral-red, the ear-lobes red, and wattles of medium size, and not too meaty.

The fowls, of which we present portraits, were bred by Col. Henry Howland, of Chicago, and received the first prize at the N. W. Poultry Association last February. Col. H. has none to sell, and this article is not written to advertise anybody's fowls, but to call attention to this excellent, though somewhat neglected breed.

The Ferret.—*Putorius furor*

This little animal, which will be at once recognized as belonging to the family of the Minks and Weasels, is much better known in Europe than in this country. It is a native of the Barbary States in Africa, but we believe sustains itself in Spain and Southern Europe in freedom. In England, however, and wherever the winters are cold, if one escapes and lives a wild life during the summer, it either returns to captivity, which is often voluntarily done, or it perishes. Hence there is no danger, as sometimes apprehended, that ferrets will run wild and become a great nuisance in every cold country. As is well known, they are employed in hunting rats and rabbits, in which exercise they enter their burrows or holes and drive them out. The hunting ferret is invariably muzzled, so that he shall not kill the rabbit, suck its blood, and leave it dead in its burrow. The training of ferrets for the different uses is a task requiring no little skill. A ferret must be a good fighter, or it will be worsted by a rat, and one accustomed to driving rabbits is, it is said, useless for catching rats. Ferrets are kept in close boxes, well supplied with wool to keep them warm, and are fed on bread and milk and meat. They breed readily and acknowledge the care of their breeder by seldom biting him, if properly handled. Sometimes, however, they inflict very severe wounds. It is a practice of European breeders to cross the ferret with the common European Polecat (*Putorius fœtidus*). The progeny is larger, darker colored, and hardier. It is said also that similar crosses may be made with the mink and some other members of the genus. The color of the ferret is very light yellowish, or white with red eyes. Our engraving represents two ferrets of very dis-similar form and size. The smaller one is very highly bred and well trained. The other, a Polecat Ferret, a famous rat-killer. Ferrets are sold by dealers in birds, dogs, and other pets, at prices varying with the training which the animals have received.



THE FERRET.—(*Putorius furor.*)

Walks and Talks on the Farm—No. 73.

First and last, I have written a good deal on the chemistry of manure. For the past week we have been engaged in drawing out manure from the barn-yard, and I can but wish that some one would write an article on the *mechanics* of the manure heap. Chemistry tells us how to make rich manure and how to preserve it, and this is certainly of very great importance. But how to handle the manure with the least labor—how to pile it and turn it, how to load it and draw it to the field, and how to unload it and spread it, are questions of no less importance. At the present price of labor we may make our manure cost us more than it is worth.

The intelligent farmers of the country should direct their thoughts to this subject, and see if some means of lessening the labor cannot be discovered. It will not do to depend on keeping up the fertility of our land by plowing under clover. That day has passed, never, I hope to return. We must keep more stock, and learn how to make a profit in raising and feeding it. The only farmers who have made money the past year have been those who have devoted more or less attention to the production of butter, cheese, pork, beef, or *good* mutton. To raise grain on land worth $100 an acre, to pay $2.00 to $3.00 a day for labor in harvesting and threshing it; to pay high taxes and high prices for every tool and implement and machine that we use, and then to pay high rates for freight, insurance commissions, and profits on middlemen in sending it to New York, and thence to Europe, where it is sold at the same price as grain raised with labor costing not half what we are obliged to pay, is a business that does not afford any particularly bright prospect of large profits. The red winter wheat is less than 50s. a quarter in England ($1.50 per bushel in gold). Not a pound of American wheat should be shipped across the Atlantic. If it were not for our strong disposition to rush into anything that for the moment promised large profits, to the neglect of the steady business of farming, we should seldom be obliged to sell our products at a loss. In the average of the last sixteen years, the United Kingdom of Great Britain and Ireland has imported over 50,000,000 bushels of wheat per annum, and she will continue to want as much for years to come. She has in some way got the impression that the United States can furnish a large amount at low rates. She should be disabused of this idea. We have a population greater than her own, and it is increasing rapidly. We can raise a large amount of wheat, provided it will pay. But to raise it and sell it at a loss is what she should be given to understand we are not willing to do. The remedy is in our own hands. No legislation can help us if we do not help ourselves. When wheat falls below the cost of production, we must either hold it or put it into the pork barrel or convert it into beef, wool, mutton or butter and cheese. Had we been disposed to do this the past autumn, we could have had 50 cents a bushel more for our wheat, to the advantage of all classes, consumers and producers alike.

But what has this to do with drawing out manure? It has a good deal to do with the labor question—and labor affects every operation on the farm. How to render labor more efficient is the first problem which the American farmer has to solve. It worries me to see a man get $2.00 for a day's work, and then spend another day, first and last, in getting his money. He would have been just as well off if he had worked two days at $1.00 a day, and the farmer he worked for would have got twice the benefit. It is a great loss to farmers and to the nation to have men work only eight months in the year. It is a great waste of labor to employ it in raising 10 or 12 bushels of wheat per acre, or 25 or 30 bushels of corn, or 75 or a 100 bushels of potatoes. Our excuse for raising such poor crops is the high price of labor. We waste labor because it is high, and it is high because we waste it.

We must employ less labor in the summer and autumn, and more in spring and winter. In this section, October and November are the busiest months in the year. We have apples to pick, potatoes to dig, corn to husk, and a variety of other things to do before winter sets in. The days are short, the weather uncertain, and much time is necessarily wasted. We must plant less land to corn and potatoes. We should try to raise as many bushels as we now do, or more, but they should be grown on half the number of acres. This can certainly be done. The digging of a poor crop of potatoes this fall has cost more than half what the potatoes would sell for, and so in husking a poor crop of corn.

We must keep more stock, and this will give more work for the winter months. Let all the straw, and especially the corn stalks, be run through a cutting machine. This will add to the labor in the winter, but greatly lessen it when we come to handle the manure. The saving of food may or may not pay for the labor of chaffing the fodder. This is perhaps an open question, but there can be little doubt that we save the labor twice over before the manure gets upon the land. The liquid from an animal is of more value than the solids, and it is with this that the greatest loss usually occurs. Chaffed straw and corn stalks, after the animals have eaten what they will of them, can be thrown from the mangers and used for bedding, and they will absorb much more liquid than when used uncut; and we can keep our animals dry and comfortable on half the litter. The manure will be more valuable, because there is less straw in it, and from having absorbed more liquid (not rain), will decompose more rapidly, and be sooner in proper condition to apply to the land.

Judging from the manner many farmers treat their animals, one would think that the winter was the busiest season of the year. The cow stables are cleaned out about once a week, and the pig-pens when they become so filthy as to be unendurable. How many men did any one ever see carding a cow? I do not know how it is with others, but I have known my men so hurried in winter that they had not time to clean out the cow's manger once a month, or not, in fact, until it became the dirtiest part of the stable. And does not the pig-trough, to say nothing of the pen, often prove that the winter is a very busy season on the farm? How about the gentle sheep? Are their wants properly and promptly attended to? I have known men so much occupied that the sheep were left to do their own foddering.

It not unfrequently happens that men can be had in winter for little more than their board; and it is certainly a very short-sighted economy to put any work off till spring or summer that can be done at this season. Next spring we shall draw out manure when the land is soft and the manure more than three-fourths water. Can we not sometimes draw it out in winter on sleighs or on wide stone boats? It is not only easier to draw, but far easier to load. Manure intended for distant parts of the farm could be drawn out in winter and piled in the field. But when manure is not used in the spring, but is piled in the yard and then applied to the land the next fall, is there nothing we can do in winter that will save labor in the spring and summer? Look at our barn-yards and see. Look at mine; look at yours! The manure from the horse-stable is left near the door; that from the cows is back of the barn; the sheep manure is in the sheds and round the straw-stack—and the pig manure, where is that? The best half of it has soaked through the planks into the ground, and yonder heap of corn-cobs, dirt and straw represents the other half. It will lie there all winter without fermenting, and next spring the man in loading it will spend half his time in removing with his foot the corn-cobs that stick on the tines of the fork. Instead of waiting till spring to mix and pile the manure, why not do this work daily during the winter? The early spring is a comparatively leisure season on many farms, but there is enough to be done without having to do work that might as well or better be done in winter. If such is not the case, your farm is better drained than mine. To relieve the pressure of work in summer, much can be done now and in spring. Whenever we commence to mow *my* machine always wants something done to it, and so with the reaper. And is it not often the case with rakes, hay-racks, scythes, cradles, etc.? If not, you are a far better manager than I am. These, you say, are little matters. I thank you for that excuse. But I cannot accept it. Farm life is made up of such little matters, and he is the successful farmer who keeps ahead of his work and has everything in order.

But, aside from all this, we can lessen our summer's labor materially by sowing less spring crops. We must plow less land and work it better. Let the land lie three years in clover instead of two, or two instead of one, as the case may be. On heavy land, fallow more and plant less corn. At first our aggregate crops may be less, but the *profits* will be greater, and in two or three years our labor will be reduced one half, and the yield per acre will be doubled.

It will not be many years before we have Chinese laborers by the thousand. But in the meantime we can accomplish a great deal more with the same labor than we do now. In fact, the cities are crowded with able-bodied men out of employment. The latter part of November, when thousands of bushels of potatoes were still in the ground, and hundreds of fields of corn unhusked in whole or in part, and when men would not work for less than $1.75, and women for less than $1.25 per day, I was told that when a load of coal was taken to a house in the city, it would not be half an hour before a dozen men and boys wanted the job of carrying it into the cellar. In the country, this winter and next spring labor will be abundant, but in the summer, and especially in the fall, it will be as scarce as ever, unless we change our system of farming. This subject ought to be thoroughly discussed by the agricultural press the present winter. It is possible in this way to bring about a concert of action among farmers. We all feel that we have been paying too much for labor, and there will be an almost universal disposition to stop all kinds of extra work. But while this may lower wages for the time being, it will not permanently cure the evil. We want to employ more rather than less labor on our farms, but it must be distributed more evenly

through the year. The first step is to employ all the men now and in the spring who are willing to work at reasonable rates, and then to reduce, unflinchingly, the area of our plowed land.

"This is much easier said than done," remarks the owner of a farm of 150 acres of naturally good land that he and his son and eight months hired men, with an occasional day-hand, manages to work in such a manner as to secure a tolerable living. In fact, he more than intimates that his style of farming pays better than mine, a remark which, though unpleasantly personal, I would rather let pass than undertake to controvert!

This 150 acres consists of 10 acres of woodland, 20 acres of rather wet permanent pasture, 10 acres of permanent meadow, cutting perhaps three-fourths to one ton of hay per acre, and about ten acres in orchard, garden, etc. On the other hundred acres the crops last year were:

12	acres	corn,	22	bushels	per acre,
3	"	potatoes,	85	"	" "
15	"	of wheat,	13½	"	" "
15	"	of barley,	21	"	" "
5	"	of oats,	58	"	" "

15 acres of clover for hay, and afterwards cut for seed not yet threshed, one bushel per acre.

15 acres two-year-old clover and timothy cut for hay.

20 acres three-year-old clover and timothy, pastured.

There is now 15 acres of wheat on the ground, after barley, and he proposes to sow 15 acres of barley in the spring on the corn and potato ground, to be followed with wheat. The twenty acres of timothy sod are to be plowed in spring and planted with corn. The five acres of oat stubble are to be planted with beans, to be followed with wheat.

He asks how I could better this rotation? I have no particular objection to it, except that it does not keep the land clean and does not produce a single crop, with the exception of the oats, that pays expenses. And unless there is a change, the land will become no richer or cleaner. We must have very cheap labor and high prices for produce before such crops can be profitable. Now, what I would do would be to divide the 20 acres into two fields. Plant one to corn this year and pasture the other, planting it to corn the year following. Put as much labor on the 10 acres in cultivating corn as would have been expended on the twenty. The five acres of oat stubble, instead of planting beans I would summer-fallow for wheat. Although the oats were a fair crop, the thistles were so numerous that only a portion of the field could be bound into sheaves. If planted to beans, a great deal of labor would be required in hoeing, or else the thistles and other weeds would lessen the crop one half, and render it a difficult and unpleasant task to pull the beans. In either case, there is little chance of the crop paying expenses on such land. The fifteen-acre field of two-year-old clover sod I would pasture till the first week in June; then plow up five acres and drill in beans immediately after the plow. The other ten acres I would plow up and summer-fallow, and then sow the whole 15 acres to wheat in the fall. The 15 acres of corn and potato land I would sow to barley, and seed it down heavily with clover, and give up sowing it to wheat next fall. The 15 acres of clover mown for hay and seed I would pasture lightly till July, and then break it up and give it a good "fall-fallowing" and sow it to barley in the spring of 1871, and sow it to wheat afterwards, seeding it down with clover. You would thus have, in 1870,

15 acres wheat, now on the ground, seeded down,
10 acres of corn,
5 acres of beans,
15 acres of barley, seeded down.

In 1871—10 acres summer-fallowed wheat,
5 acres wheat after beans,
15 acres barley after fall-fallow,
10 acres barley in oats after corn, seeded down,
10 acres of corn on old sod.

"But you are making me plow more instead of less." At any rate you will have less corn to hoe and fewer "nubbins" to pack. The summer and fall-fallowing is work that can be done with the teams, and if you do it thoroughly it will make the land clean and mellow, and you may reasonably expect good crops of wheat and barley and splendid crops of clover afterwards. Raise only what potatoes you want for a year or two till your land gets clean and full of clover roots. When it is rich enough to produce 200 bushels per acre, you can plant potatoes with considerable profit.

The increased yield of corn, barley and wheat is only one of the benefits resulting from this thorough working of the land. It will give us splendid crops of clover and rich grass, and this will enable us to keep more and better stock. Many farmers say it does not pay to keep stock, and in point of fact, they are very often in the right. I can hardly see how it pays to keep a wether sheep three years and six months, getting say $7 for the three fleeces, and then selling him for $3. But I think it must be quite as profitable as to keep a steer the same length of time and then sell him for $50. Such a steer will eat as much as eight or ten Merino sheep. But the truth is, we cannot expect to make anything by keeping stock of any kind unless we keep it well; it must be gaining all the time. If we let a machine lie idle all that we lose is the interest on the money which it cost. But an animal cannot be kept idle. It must *eat* every day; and if it gains nothing we lose all the food and the interest on the value of the animal machine besides. But many farmers not only keep them for weeks and months together without their gaining anything, but it not unfrequently happens that the animals actually decrease in weight. It has to live on its own flesh and fat—which is certainly a very expensive food. Even in the case of well-fed pigs, which store up more flesh and fat for the food consumed than any other domestic animal; for every pound of flesh and fat we get in the animal, they eat about five pounds of food. They use four pounds to live on and give us one pound. And when we have got this one pound, how excessively wasteful it is to feed it to the animal and have it worked over again; and yet this is precisely what thousands of farmers are doing to-day with cows, sheep and pigs. No wonder that "keeping stock does not pay." But good stock, fed liberally and with care and judgment, will pay better, all things considered, than any other branch of farming. Good meat brings a good price, and is always in demand. It is the "scallawags" that are hard to dispose of, and always at a loss—a loss to the producer and a loss to the consumer. Those who buy such meat get little besides bones and water. The poor animals have had to live on their own fat and their nutritious juices.

The first step in keeping good stock is to make the land dry and clean. The next is to feed liberally, and this will insure good manure, and that in its turn insures good crops.

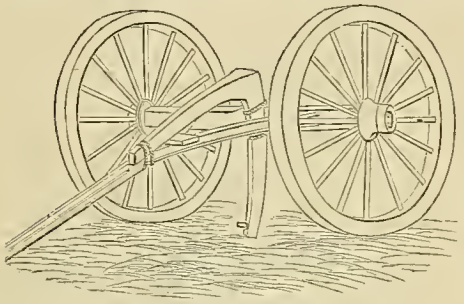
It is all very well to say that a "peck of clover seed to the acre is the cheapest fertilizer," and that by its free use we can dispense with manure. I do not dispute the truth of this proposition. No one thinks more highly of clover than I do. But it only tells half the story. Clover makes good food and good manure too. An animal will take out the food, convert it into valuable products, and leave the manure behind. Our aim should be dry, clean land, more clover and rich grass, more and better stock and more and better manure.

It cannot be too often repeated, however, that the value of manure depends on the food and not on the animals. A raw-boned steer, if it has the same food, will make as rich manure as the best Shorthorn in the Herd-book; and the droppings from a Merino sheep living on clover-hay and oilcake are just as valuable as those from a Cotswold. But this is the point: We cannot feed clover-hay and oil-cake to a Merino with half the profit that we can to a Cotswold. The former is adapted to live on comparatively poor food and grow slowly; the Cotswold has been bred with especial reference to rapid growth on rich food. So when we advocate keeping well-bred stock, in order to make rich manure, we do so for the simple reason that we cannot afford to feed rich food to poor stock, and without rich food we cannot have rich manure.

Use of the Plow in Digging Ditches.

No ditch-digging machine has yet been introduced. There are some for which great claims are put forth, but we must wait before they become common articles upon the farm. Meanwhile ditch digging must go on by spade and mattock, pick and scoop. We may, however, greatly facilitate the operation by employing the labor of horses or oxen with plows. There are several difficulties to be obviated. It is hard to plow a furrow on a sufficiently straight line; this may be accomplished by stretching a cord and turning over a narrow line of sods with a spade, exactly where the ditch should be. The cattle will follow this line of themselves, when they could hardly be driven exactly along a line of stakes. To use the plow economically, one needs a pretty strong force of diggers and pickers, and to have them well scattered throughout the line plowed. Two pairs of oxen make the best team, probably. Two furrows are turned out, 12 inches wide, and 9 inches deep. Then if the sods are cleared away, the plow may lift another furrow-slice out on each side, but probably it will only loosen the dirt and make it easy shoveling. This will stir the soil down some 4 to 6 inches, and when it is cleared out the ditch will be 13 to 15 inches deep, with ridges of earth and stones along both sides. The oxen will not easily be made to walk longer in the furrow, and without very long yokes they will not go one on each side of it. These are sometimes used, but we are informed that another plan is practised in some places with great success. The two yokes of oxen are attached abreast to the pole of a cart, the body being removed. They draw by chains made fast to the axle, and the tongue is supported by a light ash or hickory pole, lashed firmly to the yokes of each pair of oxen. The earth is thrown out from the ditch on each side, and the length of this pole is such that the inside ox of each pair walks on the inner side of the ridge. The plow is attached to the axle-tree. The chain may be fastened to the axle-tree itself, but it is far better to use an oak knee, as shown, which is lashed forward to

the tongue and hangs below. In this consists the chief merit of the whole arrangement, for by it the plow can be drawn at any depth below the surface, provided it be wooded so that the handles do not interfere with the sides of the trench. Any wheelwright will alter the wooding of a plow, or new wood it so that it shall have but one handle, and that directly above the furrow. The plow is fastened to the end of the knee in which a pin is set, by a rather short chain at first, which may be lengthened afterwards. The hight at which the draft for the plow should be is regulated by raising or lowering the knee, which is not only chained by one end to the tongue, but also to the axle, and is made higher or lower by blocks laid across under it, resting upon the spreading fork made by the tongue, where it joins the axletree,



KNEE FOR DITCHING PLOW.

and shoved forward or drawn back, according as one wishes the draft chain higher or lower.

It will be necessary to change plows as the depth increases. There are several plows so arranged that very narrow mould-boards may be attached, and after these, the subsoil plow may be used until little besides "finishing" remains to be done. In stony land men with crowbars and pickaxes must attend and take out stones as fast as they are touched by the plow.

The Geddes Harrow.

Some of the readers of the Agriculturist having found difficulty in making the Geddes harrow, we wrote to the widely-known and justly-honored farmer of Fairmount asking information

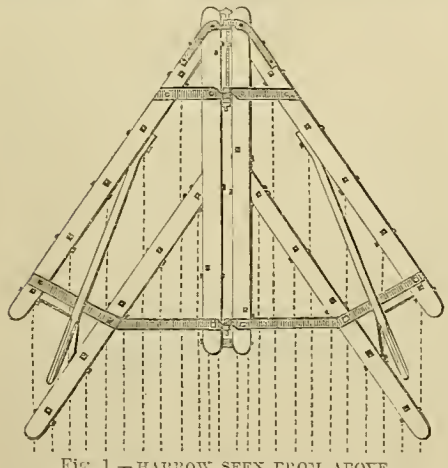


Fig. 1.—HARROW SEEN FROM ABOVE.

as to the best mode of constructing it. He replied promptly and in full, and at his suggestion a harrow was ordered for us with the few improvements which years of use have brought about. This harrow has been drawn and engraved with care, and may well serve as a model for the construction of others.

Figure 1 is a top view, showing the construction; Figure 2 is the harrow seen in perspective; Figure 3 is the harrow folded back, the handles strapped together, in shape for transportation. We find that in this form, unwieldy and heavy as it appears, it may be rolled about, pitched carefully end over end, loaded by one man into a cart or wagon, or drawn with ease

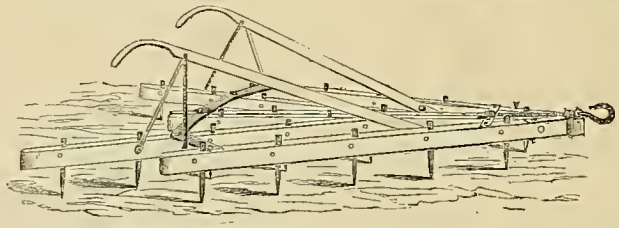


Fig. 2.—PERSPECTIVE VIEW OF HARROW.

upon the ground. This alone is a very strong argument in favor of handles instead of ropes with which to lift the sides and clear the teeth of clods or obstructions without stopping the team.

LETTER FROM HON. GEO. GEDDES.

"The harrow called by my name was invented by me perhaps 35 years ago. The leading ideas in my mind were that the line of draft should pass through the center of the harrow, and that on each side of this line of draft there should be the same number of teeth, and that the teeth should be so placed that each side would have just the same amount of leverage or lateral pressure against the center line. The object of this arrangement was to secure a uniform forward motion without lateral vibration; the teeth also to be so placed that those in the hindermost timber should cut exactly in the center of the spaces made by the foremost row of teeth. To accomplish this, the center of weight, of work or resistance, and the line of draft, must exactly coincide. But there must be no vibration, that is, the harrow must move directly forward without jerking from side to side. If there is any essential lateral vibration, the teeth cannot move with any approach to regularity or accuracy, and cannot harrow the ground evenly. The well-known square (sometimes called Scotch) harrow violates the principles that I aimed to follow accurately in my harrow, for it constantly vibrates, more or less. The best Scotch harrow that I ever saw had so many teeth that if the machine could be made to move directly forward, the marks of the teeth would have been only two inches from center to center, whereas in practice they constantly left spaces on hard land of five inches wide unharrowed. The harrow also had a tendency, on hard land, to move too much in the direction of the length of the timbers, because it had more teeth on one side of the line of draft than on the other.

"All harrows clog up on land having clover roots, stubble, etc., that has not been perfectly plowed under, and it is often necessary to clear away this matter. To do this on new land, that had some roots broken off from the stumps, I have in my early days been compelled to unhitch my horses from a Scotch harrow to clear the forward part of it. In my harrow I tried to overcome this difficulty, so I put a joint exactly in the line of draft, reaching from the hook, by which it was drawn back through the harrow. This joint is open and works on hinges, that allows either half to be turned *up* but not *down*, and laid over on the other half, where every tooth can be cleaned whenever necessary.

"Persons have often tried to make a harrow the two sides of which would fold together, both up and down. This cannot be done without having the center of the harrow liable to be lifted up by the power necessary to draw it.

"The whole object of this longitudinal joint is to enable the user to clean with ease every substance that might get among the teeth and thus obstruct the perfect working of the harrow. It is some advantage to have the center part of the harrow bend down into a dead furrow or other hollow, but the cleaning is the important matter.

"To enable the driver to lift a side of the harrow when in motion, handles similar to such as are used on corn cultivators are now commonly put, one on each half of the harrow. By having these handles it is not necessary to stop the team to clean the harrow.

"To avoid the rising up in the middle when in use, the longitudinal timbers that make the joint should be only one inch apart, with two bolts, one in the rear end of each stick, near the lower side, with large heads projecting, so as to meet when the harrow is level on top. The hinges should be on the top, and the hook to draw by should form a part of the forward hinge.

"You will see that I adopted the idea that an equilateral triangle presented the best form to carry out my views. None of the old engravings show my harrow as it now appears with the handles, which I consider a great improvement. I have no interest in making these harrows as

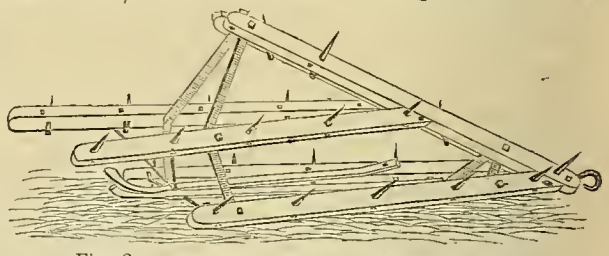


Fig. 3.—HARROW FOLDED FOR TRANSPORTATION.

I took no patent. Occasionally a friend writes to me to get a harrow made for him, in which case I put the order into the hands of a mechanic that lives near me. More than twenty years ago, I was told that a Boston agricultural warehouse had sold 5,000 of these harrows. Many years since I had a request made me to have one constructed for the government of Russia. In short, the harrow has gone into general use."

The wood is 2¾ in. Oak, the middle and outer sticks are 5 feet long, the rear ones 4½ feet; the teeth of $^{7}/_{8}$ in. square iron, 1 foot long, and the hinge-straps 2¾ in. wide, by ½ in. thick.

Action of the Frost on the Soil.

Sandy soils are not as a rule benefited by fall plowing, and by thus being more exposed to the action of the sun and frost than they otherwise would be. This is doubtless because the organic matter which is so important in this class of soils is much more rapidly decomposed and caused to disappear when thus treated. Peaty soils or those in which there is an excess of organic matter are benefited for the same reason, and because the peat becomes less pasty or fibrous, which ever nature it has, and more granular. A very marked example of the effects of frost on some organic substances may be observed in case a crop of buckwheat intended for plowing under be caught by a severe frost. Though the crop on the field might have amounted to several tons, the frost and the decompositions which follow will reduce it to an apparently valueless mass in a very short time. Little besides the stubble

is left, to appearance, and we are assured by a farmer accustomed to plowing under green crops, that not enough of value is left to pay for turning under. This we doubt, but we do believe much besides water is actually lost.

The action of freezing and thawing in clayey and heavy gravelly soils is different; while it destroys a portion of the organic matter in them, which, however, is not of such importance to them as to lighter sandy soils, it comminutes the particles, renders clods friable, and brings a larger portion of the inorganic part into a fit condition to be appropriated by the plant.

The beneficial action of frost is not due to its holding the soil in a frozen state, but to the act of freezing; consequently, thawing is almost as useful as freezing to the soil, and this useful action takes place most in moderate weather. In cold winter weather it is best for the soil to be covered with snow, which is well called "the poor man's manure," for the alternation of freezing and thawing is not altogether arrested by the covering of snow; while, if the ground is bare, the high winds of winter scatter great quantities of the finest particles of the soil.

Field Rollers.

Repeated inquiries have been addressed to the editors of the *Agriculturist* for information about making Field Rollers. There are several ways in which rollers may be and are made by farmers, but, when it is practicable, we think it far better to buy iron ones, of several sections, constructed so as to be loaded as heavily as is desirable. The simplest home made farm roller is a hard-wood log, which ought to be barked, *thoroughly* seasoned under cover, and dry; then smoothed and made cylindrical; then the centres of the ends being found, one-inch iron axles having square points should be driven into holes cut with a chisel, and should be further securely held by iron collars fitting the axles, and having two or three arms several inches long let into the wood, flush and spiked on. The roller should be two feet or more in diameter, and about six feet long. If longer it is harder to turn. It is set in a simple hard-wood frame, and it may be drawn by a chain, like a stone boat, or have a pole attached; in which case the pole must be strongly braced to the frame. After the roller is finished it should be painted, especially on the ends, with hot pine pitch as long as it will absorb it. If treated in this way these rollers are durable and tolerably good. They may be made double, like the one to be described, if sufficient pains be taken to hang them well.

A better form of roller is made of plank. Two or three circular frames of boards are made to nail the planks to. They should be of but three thickness of plank, and it matters not what the thickness of the planks is, as weight is a desirable quality. Figure 1 shows two thickness of plank, and figure 2 the end of the roller after the outside planks are put on. It will be seen that two planks cross each other in the centre of the heads, and that in these square holes are cut for the axle. The heads must be securely nailed. In nailing on the planks which form the surface in making a double roller, the inner heads are set in from the ends to give space for a wider bearing for the axles than the single plank would otherwise afford. Iron axles are used which are made of square bars of iron having their ends made true and rounded by a smith. They are inserted and keyed in place. The dimensions of the roller may vary. The one shown in figure 3 is supposed to be $2\frac{1}{2}$ feet in diameter and 3 feet 11 inches long.

The frame is best made of three-inch hard-wood sticks, in the form shown in figure 4. The rear pieces may be somewhat lighter than the front ones if desirable, but weight is a good thing. They are put together by mortice and tenon and bolted. The center piece is an inch and a quarter oak plank, six or eight inches wide, having pieces bolted to each side for bearings for the journals. The outside journals have their barings under the beams, a piece of wood being bolted on to hold them in place. The beams have holes bored in them and reamed out for oiling. Care must be taken in hanging the rollers that they stand even. A little change in position of the journals will cause them to roll unevenly and draw to one side or the other. The tongue is bolted to the forward beams of the frame as shown, and two boxes are made with slanting sides to fit into the spaces between the beams of the frame, one to go in front and the other behind. These are for holding stones to weight the roller. The weighting should be done when the team is not attached, so that it may be easily equalized. The engraving (figure 4) represents the frame of a roller having the following dimensions: Width of track, 8 feet; width of frame, 9 feet; length of frame, 5 feet 8 inches; distance between inner beams of frame, 2 feet 8 inches.

Fig. 1.

Fig. 2.

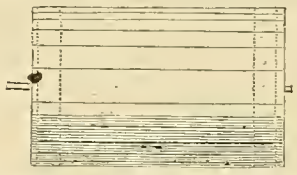


Fig. 3.—ONE-SECTION OF DOUBLE FIELD ROLLER.

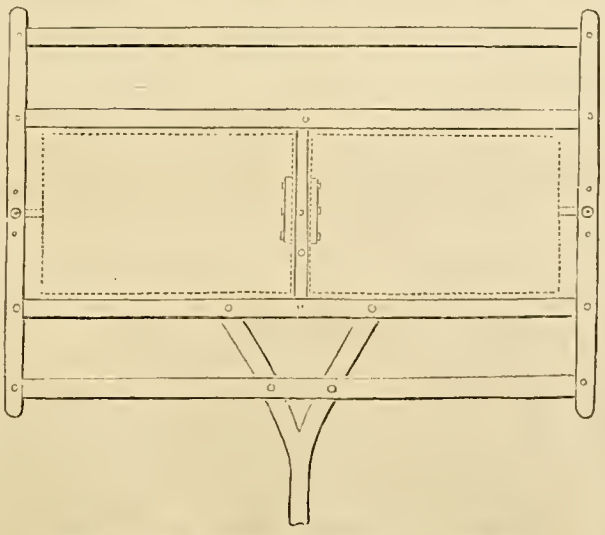


Fig. 4.—FRAME FOR TWO-SECTION FIELD ROLLER.

The place which the roller would occupy in the frame, is indicated by dotted lines; and the space on each side between the frame and ends of the sections is to allow their insertion and removal.

The Cord-Grass or "Spartina."

The materials used in making paper are numerous. We have linen and cotton in the shape of paper rags, but the supply from these sources was long ago found to be inadequate. There have been numerous inventions for using the fibre of basswood and other soft woods, as well as for the cane of the Southern States. Fibres from these sources have more or less helped to supply the great demand for paper stock. Lately, the "Esparto," a curious grass growing on the shores of the Mediterranean, has been largely used in England, and to some extent in this country, as a paper making material. As yet we know but little of its cultivation, but we believe experiments are being made with it in the Southern States. Meanwhile, one of our native grasses has come into notice, the Cord-grass, or "*Spartina cynosuroides.* This, which is shown in the engraving, is abundant along our fresh-water rivers and lakes, especially at the North, and actual experiment has shown it to be a valuable paper stock. In a report to the Commissioner of Agriculture, Mr. Jas. Woodruff, of Quincy, Ill., says: "It is much superior to straw, yielding, when properly treated, a much stronger, longer, and softer fibre, and a much larger percentage of stock. Its cost, delivered at my mill, during the past two years, has been about $5 per ton." Mr. W. says that experts who have worked the two consider the Cord-grass a better material for paper than the "Esparto." There are doubtless many hundreds of acres of otherwise unavailable land that might be devoted to this grass, and the matter is worthy the attention of both paper makers and those who have land adapted to its culture.

CORD-GRASS.

Breeding the Mink.

In response to a call for information in regard to the breeding of the Mink, several letters have been received; the most explicit of which, from D. C. H., North Tunbridge, Vt., is here given:—

"I purchased one female and her litter of five, two males and four females in all, and constructed a building of rough boards, ten by fourteen feet, for a minkery. It had a floor tight enough to prevent the escape of the animals; was properly ventilated, and divided into six apartments, one of which is an ante-room into which to step from the outside and close the

door. Water is supplied by a lead pipe running in at one side, through all the rooms, and out at the other into a trough where small fish are kept, and occasionally given to the minks. They were kept together until December the 18th, when the males were put in an apartment by themselves. On the 10th of March each male was put in with a female, each pair separate, and after a couple of days one of the males was put in with another female, and finally with the third. The other male paid no attention to the female he was with, and I think is disabled.

They were separated about the 1st of April, each female being kept alone and supplied with a suitable box, with warm material for a nest.

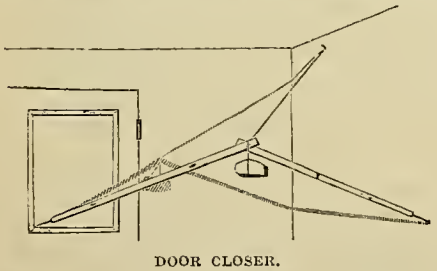
When it was supposed they were about to bring forth their young, they were disturbed as little as possible; anything to excite them at this time, should be avoided, for when irritated, they will sometimes eat their young.

The first female put with the perfect male brought forth seven, one of which disappeared after they began to crawl around out of their nest. The other two females had each a pair, all of which (but the one mentioned) are now alive, fine, fat, sleek fellows, and fully grown. They are very easily kept, being fed once a day upon warm milk with wheat bread crumbs, a quart sufficing now for the whole lot, and once upon fresh meat, care being taken not to overfeed. Any kind of meat and offal that is not too fat will answer. They are very fond of beef liver, chickens' heads and entrails, woodchucks, (being careful not to give them the gall on the liver, which is poisonous,) rats, mice, etc.

They are more easily cared for than one hog, and much more cheaply kept. Nothing was paid out for meat for them, until after the 1st of July, when a contract was made with a butcher to leave a bullock's head once a week. I am confident that the increase of the minkery would have been fully one-third more if both the males had been perfect. I intend to keep them in pairs hereafter. They are not easily handled, but struggle when caught against their will, and exude a thick fetid substance from glands near the vent. They will bite severely, but can be handled safely with thick buckskin gloves."

Shut the Door!

How often is it necessary to repeat the injunction—Keep the Door Shut? It is as desirable for stable doors as for house doors, and though for the house we have a great number of convenient contrivances for keeping the doors



DOOR CLOSER.

shut by weights and springs, for stable, henhouse, and other similar doors, we have never seen anything but the awkward cord and weight, either working over a pulley, or, so to speak, *gate* fashion. Occasion necessitated a door-closer of some kind, and we contrived, from materials at hand, the affair shown in the accompanying sketch, which works so well, that we think it worth imitating.

Two hard-wood sticks, 20 inches to 2 feet long, with sharp awls inserted in one end of each, are fastened together near the other ends with a long screw. A light weight, in proportion to one which would be required to shut a door by the cord and pulley system, is attached to the screw. The awl of one leg of the "shears" is set in a little hole, made in any convenient place, about in the middle of the upper part of the door, and the other leg is similarly placed, either in the wall in which the door is, or in a wall at right angles to it, and against which the door opens. The *shears* are held in place by being fastened by a cord to the wall in a position inclined forward a little. The holes in which the pins are set must be reamed out so that when the door is opened they will not bind. A block must be fastened to the floor to prevent the door opening too wide; but in case it is desirable to have the door swing wide open and back, the apparatus may be attached to the door and to the wall by hooks and eyes screwed in.

Ogden Farm Paper—No. 1.

Having, in Ogden Farm, such an opportunity as does not often come to American farmers, to try the value of improved methods of agriculture, it has occurred to me that many points which its management suggests might be of interest to the readers of the *Agriculturist*.

The essential facts of the case are these: I took, probably, the poorest, the most run-down, the wettest, and the least promising farm in the County, and took it because it had these faults, intending to make it the best, and to make money by the operation. I am fortunate in having an associate in the matter who has an ample capital, and is liberal in the use of it, and who has the sense to know that the *best* way is the best in farming as in everything else. With this much of personal explanation, we will turn to more important matters.

The draining of the farm, its barn, and others of its features have been sufficiently described in these columns, but there is a daily life on every farm that is worth more attention than it usually gets from agricultural writers, or, for that matter, from any one else. The making of plans, and the unmaking of them; the actual execution of some and the total abandoning of others, with the reasons that influence us in each case; the successes and disappointments; the pleasures and the discomforts of farming—these are, after all, what help most in the development of the farmer, and through him, of the farm too. The first question that arose after we got fairly started, came from a half-quizzical friend, and was, "What kind of a farmer are you going to be?" This question might have been answered in many ways. I might have said "Stock farmer," or "Truck farmer," or something of that sort, but as my plans were not definite on that point I said (the only thing I was sure of) that I was going to be a "Book farmer," and having said it, I have stuck to it ever since. I am told that there are men who think that the only things worth knowing are the things that they themselves happen to know, and I am happy to have as high an opinion of the common sense and liberality of mind of these men as they, in their self-sufficiency, have of me and of others who realize the importance of learning from the written experience of others. I yield to no one in appreciating the value of the knowledge and skill that come only with experience and "hard knocks," but I do not believe that these can ever produce their best results without the aid of a knowledge that can be obtained *only* from books; and, acting on this belief, I mean to make Ogden Farm prove or disprove its soundness.

The work of improvement was barely commenced when another friend asked, "What is to be the *solvent?* you are going to make a productive farm; how do you mean to convert its produce into money?" The answer to this question—which should be the vital one with all beginners—was not reached for a long time, not until the whole ground had been conned over and over again, for here, at least, there must be no mistake. It costs so much to prepare for any special industry—and special preparations are usually adapted only to one branch of farming—that it was of the last importance to decide on something that I would be content to adhere to to the end. It was necessary, therefore, to look to the very end, and to consider the circumstances of each future year of the operation. I had this basis to go upon: My land had been exhausted by a long series of robberies that had sapped its very vitality. Henceforth it must take in much more than it should be called upon to give out. Much was to be hoped for from draining and deep cultivation, but in addition to all this the impoverished soil must receive manure from abroad. So, in due time, the question was answered. Butter should be the solvent, because in selling this I should sell absolutely nothing that would be of value to the soil. Its constituents all coming from air and water, the poor, tired soil would have a long ten years' rest from its labors and would be helped to regain its lost force. The details of the plan included *heavy over-stocking* and *fancy prices.* The one should help the improvement of the soil, and the other the money income. The two fundamental themes of the project were these:

1. There is hardly a limit to the productiveness of land. If 50 cows are put upon 50 acres, and kept in good condition by buying food at the outset, their manure will in time make the land rich enough to support them, winter and summer, without buying.

2. *Extra price is all profit.* Given all the appointments of a good dairy, it *costs no more* to make butter worth 75 cents per pound than 50 cents per pound. No more cows are kept, no more and no richer food is consumed, and no extra help has to be hired. In my neighborhood butter *costs* about 30 cents to make; at 50 cents there is a profit of 20 cents, and at 75 cents there is a profit of 45 cents. The 20 cents is earned by the investment of capital and labor; the extra 25 cents by care, skill and neatness.

Therefore, I arranged to keep butter-making cows, and provided for their comfort by building a barn in which it would be easy to keep them in the best condition (by "soiling" in summer and steaming in winter), and to save their manure under cover. The plans of this barn are shown in the *Agriculturist* for October, 1869.

I have said that the farm was to have a ten years' rest. What I mean is this: It is charged with no extra burdens; it has no expensive family to support, only the household of workpeople who are necessary for its improvement; and it has no income to pay (except interest on borrowed capital), as neither my associate nor myself is to receive any compensation during the course of the improvement; all income from the business being invested in improvements on the farm, or in some other manner so as to produce interest until the expiration of ten years,

when the whole concern, farm, stock, implements and investments are to be sold at public auction. This will afford almost the only opportunity possible for determining the extent to which the operation has actually made or lost money. The amount of profit to be divided, or the amount of loss to be made up will be the best test as to whether the work at Ogden Farm has been practical farming or not, for if it does not *pay* it cannot be considered *practical*. It is proper to say here that the land is so situated that it is not likely to acquire a "fancy" value as building sites, and any increase in price from natural causes will be shared by all farmers in the better settled parts of New England.

At the same time we shall, no doubt, make some money from sources that are not open to all farmers. If we did not, we would be eminently unpractical, for we have some opportunities that others have not—offset by some temptations to extravagant expenditure from which others are free; and, in considering the whole question, it becomes necessary to define what is a "practical farmer." I give that name only *to the farmer who makes the utmost of every advantage he has or can get.* A man may rise with the lark and work until dark; may be the best plowman, the best stock-feeder, and the best foreman in the world, and yet, if he lets his manure heap slip through his fingers, or raises corn when he should or could raise roots, or raises grass when he should raise corn, or buys costly tools and leaves them to rust and rot away out of doors, or invests money in bank stocks when he should invest it on his farm, or cultivates wet land which he might drain, or keeps poor stock when he might keep good, or sells in a poor market because he had not informed himself as to a better one, or cultivates two acres to get a crop he might more cheaply raise from one, or does any one of a dozen other things that many farmers do, as a matter of course, he cannot be called a practical farmer. A man who cultivates his farm and does not at the same time cultivate his mind, is a very unpractical farmer, for *his wits*, if well brightened and shrewdly used, are worth, as a source of income, more than all his teams and tools. The only way to be practical is to make every acre, every hour, and every faculty, what we know and all that we can find out, *tell on the final money result*, and on the increased *money-producing* power of the farm. Farming is a *business*, and its success is to be measured by the money it makes—as is the success of any other business.

Ogden Farm was taken in hand September 6th, 1867, when its sixty acres were divided into eight fields, besides the orchards, garden, yards, etc., about the house and barn, these containing some four acres. There was not a field on the whole farm that was not oozing with water for a fortnight after every rain, not one that would produce a ton of fair hay to the acre, not one that would, after deducting the cost of manure and cultivation, pay the interest on its value. The outgoing tenant could not pay his rent, and "Poverty Farm" could not have found another tenant who could afford to pay the taxes. The buildings on the place were not worth $500, and not one of the interior fences would turn an enterprising calf. It was in one sense a most unpromising place, but it was one on which the judicious expenditure of money offered the best results, for the land was "strong," smooth, and free from large stones. Newport, a good market, is only four miles distant by a good road. The beach (from which sand and sea-weed are procured) is only two miles away. If it would pay to improve any farm it would pay to improve this one. So the work was vigorously commenced; the whole place was underdrained with tiles, an excellent large barn was built, the house was remodeled and made comfortable, and other necessary buildings were put up. The interior fences are removed (or soon will be), so as to throw the eight original fields into one, which is divided (by imaginary lines only) into six sections of nine and a quarter acres each. In this manner unnecessary headlands are dispensed with, and short furrows in plowing are avoided.

All this has cost money, and as yet the result bears a trifling proportion to the outlay. But it is too early yet to speak of results, the only point aimed at is to secure the best result at the end of the ten years, and, in that view, what is now most necessary is to put the whole farm on such a footing that its producing power may speedily become as large as possible without calling for an injudicious expenditure of capital. The draining is complete, and it would be difficult to find a heavy soil any where that can be worked sooner after a hard rain, or which better shows the effect of manure; but fully one-half of the land is in other respects unimproved, and only about eight acres of it is in what may be called excellent condition. From the growth of the past season, I have no doubt that this eight acres, devoted exclusively to soiling crops, would fully support twenty cows from May 15 to Oct. 15. When the whole farm is in like condition, (and it was originally all of the same character) it will produce enough to supply fifty cows and four horses with their entire summer and winter food. Nor do I believe this will be the end, for the manure of these animals reapplied to the land on which their food was grown cannot fail to increase its fertility until the produce is only limited by the labor at command, and by the quantity that can stand on the ground—and I know of no instance in farming in which this limit has been attained on any considerable area.

Draining was of the first consideration in the work of improvement, but hardly second to it in importance was the question of Manure, and this gave me much perplexity. As a general rule, it is the wisest course for beginners to follow the custom of their neighbors until some better way can be found; but my neighbors were depending mainly on sea-weed from the shore and stable manure from the city, procured at a fearful cost. The latter was bought at from $6 to $8 per cord (128 cubic feet) in livery stable cellars, whence it was thrown out by their own teamsters, and hauled home, at a snail's pace, by four oxen, not more than a cord in a day. Spread upon the land, it could not cost at average distances less than $10, per cord. At this rate it would cost $5,000 to manure Ogden farm. Sea-weed cost $3 to $4 on the beach, and on the land from $6 to $7. This, too, was too costly, and I resolved to try the effect of special fertilizing. Having seen the good effect of Green Sand Marl on land similar to my own in New Jersey, I procured as an experiment a cargo of 100 tons, costing on the farm about $500.

I cannot say that this has had no effect, and I am not sure that it will not, in time, return its cost; but I am confident that the same money, invested in stable manure, or in sea-weed, would have *paid* much better, on my land, on the old principle of "the nimble sixpence and the slow shilling." Subsequently, I bought butchers' hog-pen manure, costing about the same amount, and it told a very different story, though I am satisfied that the only place from which such manure ought to be procured is one's own barn-cellar or manure-shed, and that our most strenuous efforts should be given to increasing the home supply. Sea-weed I was a slow convert to, and I am not yet sure that it is worth, as a fertilizer, the money and labor that it costs; though its advantage as a covering—as protection against frequent freezing and thawing,—especially where snow is as unreliable as it is here, may make up the account. Indeed, the eagerness with which it is sought, and the lavishness with which it is used, indicate a confidence in its value that only favorable experience could give. I am, this season, covering over half of my twenty acres of clover with it, and shall be able, a year hence—from a comparison of the two lots—to judge of its value; but the seventy cords required will have cost $280 on the beach, and thirty-five days labor of a man and four horses, bringing the total cost to at least $40 per acre, and I am very doubtful whether the benefit will be equivalent. I am sure it would not but for the effect of the larger clover roots on subsequent crops; for after taking $40 per acre from the value of two cuttings of clover, there will be very little money left for the farmer. However, we suspend judgment on this point until the result is before us.

Farmers Should Take Enough Sleep.

Said one of the oldest and most successful farmers in this State, "I do not care to have my men get up before five or half-past five in the morning, and if they go to bed early and can sleep soundly, they will do more work than if they got up at four or half-past four." We do not believe in the eight-hour law, but, nevertheless, are inclined to think that, as a general rule, we work too many hours on the farm. The best man we ever had to dig ditches seldom worked, when digging by the rod, more than nine hours a day. And it is so in chopping wood by the cord; the men who accomplish the most, work the fewest hours. They bring all their brain and muscle into exercise, and make every blow tell. A slow, plodding Dutchman may turn a grindstone or a fanning-mill better than an energetic Yankee, but this kind of work is now mostly done by horse-power, and the farmer needs, above all else, a clear head, with all his faculties of mind and muscle light and active, and under complete control. Much, of course, depends on temperament, but, as a rule, such men need sound sleep and plenty of it. When a boy on the farm, we were told that Napoleon needed only four hours sleep, and the old nonsense of "five hours for a man, six for a woman, and seven for a fool," was often quoted. But the truth is, that Napoleon was enabled, in a great measure, to accomplish what he did from the faculty of sleeping soundly—of sleeping when he slept and working when he worked. We have sat in one of his favorite traveling-carriages, and it was so arranged that he could lie down at full length, and when dashing through the country as fast as eight horses, frequently changed, could carry him, he slept soundly, and when he arrived at his destination was as fresh as if he had risen from a bed of down. Let farmers, and especially farmers' boys, have plenty to eat, nothing to "drink," and all the sleep they can take.

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A GROUP OF CALADIUMS.—DRAWN FROM NATURE.—*Engraved for the American Agriculturist.*

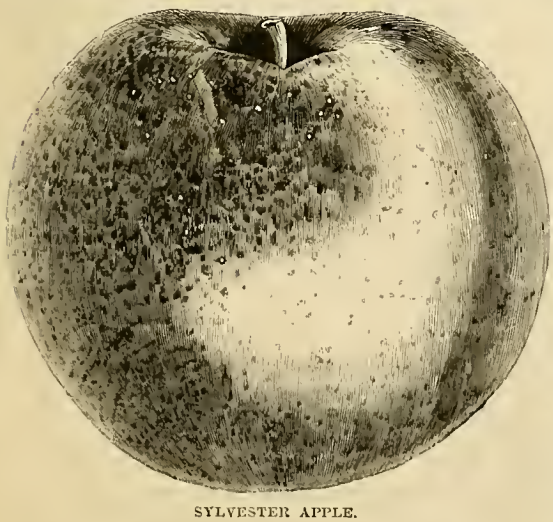
Caladiums as Garden Plants.

The attempts to follow the styles of garden ornamentation which are so successfully carried out in England are with us, for the most part, if not downright failures, at least quite unsatisfactory. Our florists import bedding plants, and with them the glowing descriptions of English dealers; the plants are tried by a few seekers after novelties, and are generally heard of no more. A few, indeed, stand the test to which our hot summers subject them, and we shall in time find a sufficient number of plants suited to our climate, with which we can produce all desirable effects. This list will, however, be quite different from the plants which flourish so finely in the moist summers of England. One after another, the plants which we formerly supposed could be seen only in a hot-house, or at least a green-house, are found to answer admirably when planted in the open ground during summer; our weather seems to remind them of their native tropics, and they flourish accordingly. Those who read of the wonderful beauty of the sub-tropical gardening of Europe need not envy the cultivators across the water. Our own climate allows of the use of a larger number of sub-tropical plants for garden decorations than does theirs. It needs only a few good examples here and there to create a public taste for this style of gardening, and as soon as there is a demand for plants of a tropical habit our florists will not be slow in supplying it. The Caladiums are now attracting attention for decorative purposes out of doors. The great beauty of their leaves, in both form and color, have long made them prized ornaments of the hot-house, but they are now to be more widely known, and we hope to see them before long as popular as their relative, the well-known Calla. The *Caladium*, (or *Colocasia esculentum*,) a very large species with enormous leaves, the bulbs of which are the chief article of food of the natives of the Sandwich Islands, has been more or less cultivated for years. The leaves of this are of a soft, light green, but other species present us with foliage of most brilliant colors and exquisite

markings. A group of the leaves is given in the engraving, where it is difficult to show much more than the form. The imagination must fill up the markings of some with rose, carmine and purple, give a pure white ground, traced with delicate green lines to others, and to a few it must give the metallic lustre of bronze. The florists offer some eighty varieties at prices ranging from 25c. to $4.00 each, according to their rarity and ease of propagation. The lower priced ones, which comprise most of those shown in the engraving, include some of the most desirable sorts. The Caladiums are mostly natives of the tropics of Asia and America; they flourish in good garden soil, but all the better if it is partially shaded. They must not be put out until about the first of June, and when the early frosts come the bulbs must be taken up and kept in a warm place. The derivation of the name Caladium does not appear to be settled, but if the plants become as popular as we think they may, it will present no more obstacles to those who have an aversion to botanical names than do Rhododendron, Magnolia and Geranium.

The Sylvester Apple.

At the State Fair held in Rochester in 1868, we saw an apple which was remarkable for its beauty, and when its originator, Dr. E. Ware Sylvester, of Lyons, N. Y., gave us a specimen to taste, we found that its quality kept the promise made by its exterior. Again, this year, we have been able to try other specimens of the variety, and considering it as deserving a wider popularity than it now enjoys, have had it engraved. The tree is said to be vigorous and an abundant bearer. The size and shape of the fruit are shown in the engraving. The skin is white and of a most delicate waxy appearance, which is lightened by the beautiful markings of crimson that are found upon the specimens, which have been well exposed to the sun. The flesh is white and very tender and juicy; indeed, upon cutting, the juice follows the knife as it does with a well-ripened pear; flavor, a pleasant subacid. Excellent for cooking Sept. and Oct. Dr. Sylvester should feel gratified at having his name attached to so good a fruit.



SYLVESTER APPLE.

The Climbing Fern. (*Lygodium palmatum.*)

The Climbing Fern is so unlike others of our native ferns, that one at first sight would hardly class it with them. Its peculiar form and climbing habit are shown in the reduced engraving, where a fragment is also given of the full size. The light brown stalk is very slender and wiry, and twines closely around small shrubs and other plants, climbing to the hight of two or three feet. Small branches are placed alternately on the main stem; these are forked, and bear at each division what passes for a single leaf, but which, in a botanical description, would be called a *frond* or *frondlet*. Each of these leaf-like bodies is several lobed, the upper ones being very much divided. The small upper ones are the fertile fronds, and upon the under side of them the spore-cases, or what correspond to seed-vessels, are borne. This is among the rare plants of the country, but it is found in several localities, from Massachusetts to as far south as Florida. One of the most abundant localities is at East Windsor Hill, Conn. The striking delicacy and beauty of this fern adapt it to decorative purposes, and it is used in its green state, or pressed and dried, when it is formed into graceful wreaths to surround pictures, attached to white curtains and the like. So popular had it become in Connecticut that there was danger that the locality at East Windsor Hill would become extinct, as large quantities were carried off yearly, until an act was passed by the Legislature forbidding its wanton destruction. The root-stalks are very slender, and the plant does not, as a general thing, bear removal well, though we have known it to be successfully transplanted and to establish itself thoroughly. *Lygodium* comes from the Greek word for flexible, and the specific name *palmatum* is in reference to the manner in which the fronds are lobed, like an outspread hand.

CLIMBING FERN—(*Lygodium palmatum.*)

Propagating the Larch from Seed.

BY D. C. SCOFIELD, ELGIN, ILL.

[Mr. Scofield, who is a warm advocate of tree-planting, considers the European Larch the most valuable tree for timber. He gives the following as his method of treating the seed.—EDS.]

"First. Two prominent difficulties are encountered in this country, which I believe are unknown in Europe; the hot rays of the sun having the double tendency to scald or heat the soil, so that it causes the plant to die at the collar, or as the phrase has it 'damp off,' as well as to scorch the tender plant as it emerges from the earth. These are overcome first, by selecting a light, sandy, dry, though rich soil, for the seed bed; and secondly, by a partial shading the first season, which may be best done by nailing strips of lath one inch apart, and placing them, one foot in hight, over the seed bed, so as to partially obstruct the rays of the sun. Any other material that will render the same amount of shade, will answer.

"Second. The soil where the seed is to be sown should be as clean from weed-seed as possible. The usual time of sowing onion seed, or from middle of April till first of May, is the time to sow Larch. It may be sown in drills, four or six inches apart, or broad-cast, and covered just enough to retain moisture until it germinates. It may be sown as onion or other seed without preparation. Clean culture is indispensable. The shading may be dispensed with after the first season. The seedlings should be transplanted either at one or two years old from the seed-bed. This should be done as soon as the weather and soil will permit, in the spring, in a similar soil to that in which they were grown, and better at one year old than two. Transplant in beds, in rows six

EARLY WYMAN CABBAGE —(See next page.)

inches apart and four inches in the row, and shade, as directed for the seed-bed. The roots should be kept from the atmosphere as much as possible in transplanting. With good seed, a satisfactory success will be realized. This method will apply with equal success in propagating any variety of hardy evergreens.

The Early Wyman Cabbage.

The market of each large city presents peculiar features not to be found elsewhere. In New York an article will sell if it looks well, no matter if its quality is inferior to that which is less showy in appearance. In Boston, people are more particular; they take the pains to learn the names and characters of the best varieties of fruit and vegetables, and are governed more by quality than by external appearance. The gardeners who supply that market have obtained, by careful selection, several varieties or sub-varieties which have a local popularity, and are worthy the attention of growers elsewhere. Boston Market Cauliflower, Boston Market Celery and Boston Market Tomato are all among the best, if not the very best, of their kinds. The popular early cabbage in the Boston market is the Early Wyman—which, for a wonder, is not called "Boston Market." The variety originated with Mr. John Wyman, of Arlington, Mass., and the seed was introduced by Washburn & Co., of Boston. The engraving on page 21 gives the shape of the head. Specimens furnished us last spring by Messrs. B. K. Bliss & Son were of large size, solid for an early variety, and very crisp and tender. It is said to bring a higher price in market than any other variety.

Tree Labels.

A tree label that will not require too much trouble to make it, and that will remain legible for a series of years, has long been a desideratum among fruit-growers. It may be that this

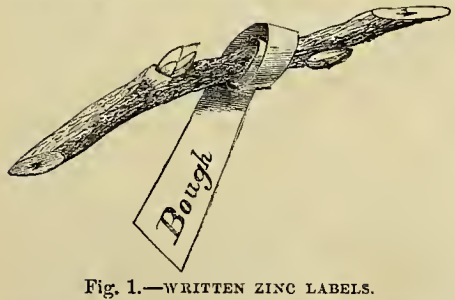


Fig. 1.—WRITTEN ZINC LABELS.

is supplied by the simple zinc label written with a common black-lead pencil. Several gentlemen inform us that they have had labels of this kind remain legible for ten or more years, and that though the writing makes but little show when recently done, in time it becomes more distinct. We suppose that the surface of the zinc just under the writing is protected by the black-lead or plumbago of the

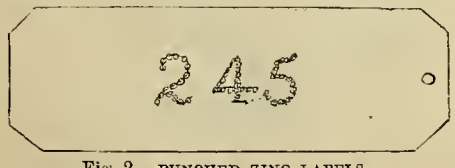


Fig. 2.—PUNCHED ZINC LABELS.

pencil, and that while the rest of the surface is oxidized by the action of the weather this remains intact; or it may be that the carbon—the best black-lead is nearly pure carbon—unites in some way with the zinc. The only objection we see to these labels is the ease with which they may be effaced when the writing is fresh, but a few weeks' exposure fixes it. The Gardeners' Monthly gives a convenient form for the label, which is shown in the engraving. The zinc is cut in the form of an elongated triangle, the point of which, when wrapped around a twig, will hold the label, and at the same time expand as the tree increases in size. Mr. O. D. Case sends us a specimen of the labels he has found to be most serviceable. He uses a tag of zinc, upon which he marks a number, and then with an awl punches holes through the zinc, following the outline of the number, as in the figure; the roughness raised by the punching is filed off. A number of this kind has the advantage that it can be buried in the ground with cuttings and cions without risk of being obliterated, but it of course requires that a record of the numbers and the names they represent should be carefully kept.

Asparagus Culture—The "Colossal."

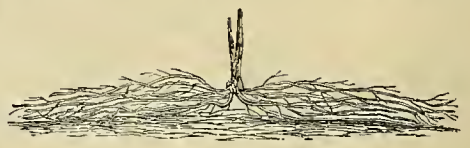
BY PETER HENDERSON, BERGEN CITY, N. J.

When, in 1867, I wrote "Gardening for Profit," I then gave it as my belief that, at that time, we had only one variety of asparagus; and that all the so-called "Giant" and "Mammoth" varieties were merely the results of superior soil or cultivation, which on being propagated by seeds or otherwise and placed in ordinary conditions of culture, would fall back to their original or normal condition; in short, that the *species* had never "broke," as we technically term it.

At least half a dozen different times during the past twenty-five years had various parties claimed to be possessors of varieties of asparagus of increased size and productiveness; these, when fairly tested, we found to be nothing better, nothing different, from what we had been cultivating. This experience necessarily made most of us skeptical to the claims of Conover's "Colossal," and when the question was asked me, as it was done some hundreds of times last season, I invariably replied that all past experience in this matter led me to believe that it was no different from the ordinary sort, and for that reason we had refused to offer the seed for sale until satisfied with full proof of the claim.

I had had several conversations with Mr. Conover on the subject, and although I had no doubt that he honestly believed all he represented, still thought him mistaken, until one day in May he walked into our store with two bunches of asparagus so entirely different in *color*, *texture* and *size* that left me no longer room to doubt, but that these were different varieties. This was one point gained for Mr. Conover and one lost for me, which resulted in an arrangement with him to go over to the farm of Abraham Van Sicleu, of Jamaica, Long Island, and there to inspect an acre of the Oyster Bay Asparagus (the ordinary kind), and an acre of his "Colossal," which Mr. Van Sicleu had planted in the spring 1868, each then one year old from seed. A thorough inspection of the roots of each lot proved that they were of the same age. The soil was next examined, and found to be as near the same as it could well be, yet these two beds of asparagus showed a difference that left me no longer a shadow of a doubt of their being entirely distinct varieties. In the old variety we found no shoot thicker than one inch in diameter and averaging twenty shoots to a hill, while in the Colossal many shoots were found an inch and a half in diameter and averaging thirty-five shoots to a hill—an enormous growth when it is remembered the plant was only three years from the seed.

Mr. Van Sicleu is well known as one of our best Long Island market gardeners, who has made the growing of asparagus a specialty for twenty years, and who has probably in that time sold more asparagus in the markets of New York than any other man. He was exceedingly enthusiastic in praise of this variety, believ-



MANNER OF PLANTING ASPARAGUS.

ing that at a low estimate it would yield a profit of at least one-third greater than the ordinary sort, under the same conditions, besides coming to maturity two years sooner.

Mr. Van Sicleu's method of growing asparagus is simple, and in some respects new to me. To begin, he sows his seeds in his rich sandy loam, in April, in rows one foot apart and two inches in depth, dropping the seed so that they may be distributed evenly about half an inch apart; the plants are cultivated by hoeing between the rows and keeping them clear of weeds by hand picking. In the spring following he sets his plants (now one year old, which in his experience, is preferable to two years old). His mode of planting is somewhat different from the usual practice, but for having a lasting asparagus bed—one that will be as good at the end of twenty years as it is at eight—it is certainly the best. It differs in putting the plants much wider apart than usual, his plants standing six feet between the rows and four feet between the plants, making less than two thousand plants to an acre. In preparing the land to receive the plants, he merely plows to the depth of a foot or so with the ordinary plow; his soft, sandy subsoil rendering the use of the subsoil plow unnecessary, but in soils less favored, the use of the subsoil plow would be of decided advantage. In preparing to plant, he turns out a furrow with a double mould-board plow, so that at its deepest part it is nearly 12 inches deep; a good shovelful of thoroughly rotted manure is then placed in the furrow, at distances of four feet, so spread that it will make a layer of three inches or so; an inch or two of soil is then thrown on the top of the manure and the asparagus planted as shown in the engraving, and so deep that its crown is seven or eight inches under the surface level. The plant is now only partially covered up with the soil, say two or three inches, until it starts to grow, when the furrows are thrown in by the plow so that the whole surface is leveled, which places the crown of the asparagus some seven or eight inches under the surface. This would be, perhaps, two inches too deep in heavy soils, but in the light, soft soil near Jamaica it answers well. The first and second seasons after planting, no asparagus is cut for market, as it weakens the crop, but in the third year a partial crop is taken, although Mr. Van Sicleu does not consider his beds to be at their best until the sixth or seventh year. Their productiveness may be continued for 20 years by his wide system of planting, recourse being had to manuring freely annually, by digging or plowing it in around the roots before the crop has started to grow, or after it is cut. The average clear *profit* annually, taking the wholesale price of 25c. per bunch, Mr. Van Sicleu estimates to be for his section (which is

not early) at $225 per acre for the older sort; the Colossal, he thinks, will run at least one-third higher, or about $350 per acre.

Some growers estimate their profits of asparagus at nearly double these rates, but much depends on location. Asparagus must become in a short time a valuable crop to be raised in the Southern States for our northern markets. A small quantity of the ordinary variety sent me (1st April, 1868,) from Macon, Georgia, sold for $1 per bunch, when the bed from which it was taken had nearly ceased bearing for the season. An acre of the Colossal variety, properly planted in such a latitude, would certainly nett $1,000 profit per acre when in full bearing. It is an article with which the market is never likely to be glutted, for the reason that we must wait a few years for returns. Beginners generally cannot afford to wait, and they grow such crops as mature the season of sowing the seeds; hence, in the great majority of cases, particularly in the vicinity of all large cities, there are often times when many articles sell below a paying price.

Boxes for Starting Plants.

Several devices, patented and otherwise, have been offered for boxes in which such plants as are injured by a disturbance of their roots may be started and afterwards readily and safely removed to the open ground. It is not improbable that it will be found profitable to forward cotton by starting it under glass and transplanting it; at all events a patent has been taken out for an apparatus for the purpose. We gave, some time ago, a box with movable partitions in which melons, cucumbers, etc., could be started in the hot-bed or window and the plants removed at the proper season without disturbing them. A correspondent, "V," Antrim, N. H., says in reference to these boxes:

"I formerly used such a one, but I have lately used *paper boxes*, which I like better. The paper of my boxes, not being entirely decayed, holds the earth firmly in its place until the plant is set out. To make these boxes, cut strips of thick paper about six inches wide and 17 long; paste the ends together, lapping an inch, which will make a circle 16 inches in circumference; then press the sides of the circle together flat, and double once, making a book of four uncut leaves; now, open with the fingers, pinch down the corners properly, and a bottomless box four inches square is the result. Place as many of these as are needed close together in a wooden box, fill with earth, and sow seeds or prick out the plants. After trying boxes of wood, birch-bark, earthenware, etc., etc., I have for two or three years fallen back upon these paper ones as the simplest and best. It is best not to have the box that holds the paper ones so high by two inches as they are, as the paper then does not decay so rapidly as in higher boxes, and holds the earth together better in transplanting.

KEEPING SQUASHES.—"Bunker Hill," Charlestown, Mass., states that he by accident discovered that squashes picked and stored in September will keep much better than those harvested later. He keeps Hubbards and Turbans until June by gathering early and placing them on the shelves of his store, leaving them there until spring. He sums up his account by saying: "Gather the squashes for late keeping between September 1st and 10th, taking only those that grow near the root; put them on the shelves where they are to be kept and keep them dry and cool. Let the remainder of the crop be the first to be used or marketed."

Notes from the Pines. No. 8.

Just now the Frost King, with ice and snow, puts a stop to out-door work and you cannot expect very full notes. One of my favorite plants is the Christmas Rose, (*Helleborus niger*) which in England blooms at the time indicated by its name, but very rarely does so here. I usually take up a clump, and pot it, and by keeping it in a room where there is no fire, have blossoms about Christmas. It is a provokingly slow grower, and this is perhaps one of the reasons, why we so seldom see it in gardens. If left in the ground, and the season is not favorable for a winter blooming, it comes out early in spring.

A row of old currant bushes which have long been innocent of shears or knife is about as unsatisfactory a thing as one can spend time over. Here were the old bushes from which it was desirable to get one more crop of fruit, as newly set ones of better varieties would not bear next year. To leave them in their present condition was not to be thought of, as their long stems had fallen over and become interlaced, and long, stout shoots of new wood had pushed their way up through the entangled mass. Some people assert that trees and shrubs should not be pruned at all, as it is "against nature." Nature is a very good thing, but I don't like too much of it, so I went at the unpromising job. Wishing only one more crop of fruit before the bushes were uprooted, almost all the new wood was cut away, and as much of the old as would relieve its crowded condition. As I was at work, a neighbor came along and watched proceedings. I supposed he was indulging in mental criticism upon the work, which, being done with a particular end in view, was against all ordinary rules of pruning. I remarked that he must not laugh at my pruning as I only wished to save the stems that had fruit buds on them. He replied that he did not know that there was any difference between buds. I mentioned it to another that it was strange that a very intelligent farmer had not observed the difference between leaf and flower buds on the currant, cherry, and other trees. Gentleman No. 2, was brought up on a farm, and carries on operations upon a large scale. To my great surprise *he* didn't know any more about buds than gentleman No. 1. Dr. K. laughs at American journals because they do not get beyond the A-B-C of horticulture. Yet here were two persons, intelligent and observing, who were not prepared to go into the a-b-abs. For the benefit of these two, and as many more as need it, I give a drawing of a portion of a branch of a currant bush which will show the difference in the buds more plainly than description. The lower portion of the fragment is two years old, the upper is one year old, or rather of one season's growth. The new wood, as it is called, is drab, and paler in color than the old, and has upon it single scattered buds, which next year would produce leafy shoots only. The lower part or old wood is darker and bears clusters of buds on short spurs, and it is these buds which produce the flowers. The engraving represents a branch of partly old and partly new wood. In currant bushes as usually grown, shoots, entirely of new wood start from near the ground, or below it, and while they will appear the finest and most vigorous, will not fruit the season following that in which they grew. In pruning currant bushes, generally a portion of these new shoots are to be retained to replace the old ones when they have become weakened by several crops.

CURRANT.

It is a misnomer to call the Arbor Vitæ an evergreen. There are some near the house which have put on their dull greenish-brown for winter. I wish they could be exchanged for some of the Hemlocks that grow on the hill over yonder, and I would give both these miserable sticky Balsam firs for one good White Spruce of half the size. Winter is the time for those who intend to plant evergreens to give the matter thought. Those which look best in summer are not always the most desirable for winter. Now is the time, also, to consider where they may best be planted, as the foliage of other trees is now out of the way.

STAKES.—Mr. J. H. Spear, Quincy, Mass., writes, that stakes that have been thoroughly salted, last three or four times as long as others. He uses pine or spruce and salt in brine as if they were meat. Those an inch thick remain in the brine four or five months.

Some of the New Annuals of Last Year.

BY JAMES VICK, ROCHESTER, NEW YORK.

[Mr. Vick, the experienced seedsman and florist prepared a paper upon annual flowers for the Horticultural Annual. A press of other matter crowded this article out and we present a portion of it here.—EDS.]

RHODANTHE MANGLESII MAJOR.—I have seen charming plants of *R. Manglesii* in Europe almost a shower of graceful rosy bells, but never anything more wonderfully beautiful than a bed of this new Rodanthe, in my grounds the present season. It is like *R. Manglesii*, except that the flowers are about twice the size, and the plant far more robust. In Western New York the summer has been wet and cold, something like an English summer, and this may have been the cause of the success.

THE PETUNIA is one of the most useful of our hardy annuals, and its improvement in the past twenty-five years has been quite marked. Only a few years since the Petunia was a poor, white, papery flower. Then small purple flowers were produced. Now we have them of every desirable color, except yellow, and perhaps blue, though some of the purples are very near blue, and both double and single. For making a good showy bed, the single sorts are the best.

There are two classes of Petunias; one of the same habit as the old Petunia, with tough, slender, wiry branches, bearing a mass of flowers, and also giving abundance of seeds. The best variety of this class is the *Countess of Elesmere*, a bright rose, with a white throat. This variety flowers so freely, and is of such a bright rose color, that it makes a bed on the lawn or a border of great beauty. It always comes true from seed. The *Blotched and Striped* of this class is also very desirable—of almost every conceivable style of marking. There are also mixed varieties of almost every color. Plants

of this section make a very long though slender growth. I have measured plants this season which covered with their prostrate branches spaces ranging from 12 to 18 feet in diameter.

The *Grandiflora* section have thick, short, succulent branches, covered with a sticky substance, very large leaves, and enormous flowers, often from four to five inches across. They flower very freely, but not as abundantly as the small flowered ones. They produce but very little seed, and none in the open ground, as a general rule, though perhaps a little could be obtained in a very dry season. To obtain seed of this fine class, the plants must be grown in pots, and kept in the house out of the way of dew and rain, and even when this precaution is taken the product of seed is very light.

Among the best of this section is *Kermesina*, a deep crimson; *Maculata*, mottled, striped and blotched in almost every conceivable manner; *Venosa*, of various colors, but covered with a network of purplish veins; *Rosea*, deep rose, generally with a clear white throat; *Marginata*, which has flowers of various colors, that are curiously margined with green.

In my Petunia house, devoted to saving Petunia seeds from pot plants, this summer I discovered a plant producing flowers that startled and delighted me; they had a pretty, deeply cut fringe. My first impression was that this fringe resembled that of the Fringed Gentian. I give a drawing (Fig. 1,) of this remarkable flower, and hope to prove, next season, that the peculiarity will be reproduced from seed.

Fig. 1.—FRINGED PETUNIA.

DIANTHUS HEDDEWIGII DIADEMATUS fl. pl.—All of which means Double Diadem Pink. This is altogether the most desirable acquisition of the year. It is of the style of *D. Heddewigii*, but more dwarf and compact in habit. The flowers are from two to three inches in diameter and when true, perfectly double; of all tints, from the most delicate to the deepest velvety purple, and of the most gorgeous markings; as the grower wrote me a year since, "Each petal is a marvel of beauty in its drawing." (Fig 2.) Only about one-half the plants produced from seeds are true, or at least give flowers that are equal to the description, but these are so good that no one would mourn over those that fail.

Fig. 2.—DIADEM PINK.

ZINNIA DOUBLE.—Three new Zinnias appeared among the European novelties last season, one claiming to be dwarf in habit, but it was no more dwarf than thousands I have had every season, and had no merit that I could discover. One, represented as quilled, proved curious and very good, though only a few of the plants produced flowers with quilled petals. For many years we have been wishing, working, and waiting for a good *double white Zinnia*. I had grown a good many of a pinkish-white, and of a dirty yellowish-white, but none that satisfied me.

A friend in Europe wrote me that he understood Vilmorin, Andieux & Co., of Paris, had succeeded in producing a good double white flower. In answer to inquiries on this subject, these gentlemen wrote me that they were laboring in this direction, and not without some success, but were not yet prepared so send out anything they had yet produced as a White Zinnia. My efforts have thus far been equally unsuccessful in this direction, yet I hope, in a year or two, not only to exhibit good double Zinnias of snowy whiteness, but those beautifully striped. I had one plant last season producing flowers as clearly and distinctly striped as the best flake Carnation; another with a row of snow-white petals, then a row of crimson, alternating though a little irregularly to the centre. Others with stripes and blotches of red and yellow. I shall watch these changes most anxiously for a year or two. If the striped flower, of which I give a drawing (Fig. 3), reproduces itself from seed next season, I shall feel that its character is pretty well established. I have already obtained everything that can be desired in perfection of form and size of flower, and have every desirable shade of color except blue, which we never expect to see, and white, which I hope to exhibit before long; while I feel quite confident that another year or two will give a collection of fine and well established striped varieties.

Soon after the introduction of the Double Zinnia, I became satisfied that it was destined to become one of our most popular flowers, being hardy, showy, and enduring in its individual flowers, and set to work earnestly to improve its character in every possible way. I am more than satisfied with the results thus far obtained, and await a year or two more of experiment with patient confidence.

CALANDRINIA SPECIOSA ALBA.—A dwarf variety, with pure white flowers in the greatest abundance, and if it kept in bloom during the whole season would be valuable. Unfortunately, the plants acted early in August as though they had fulfilled their mission, stopped blooming, and left me without the white stripe in the ribbon.

Fig. 3.—VICK'S STRIPED DOUBLE ZINNIA.

THE HOUSEHOLD.

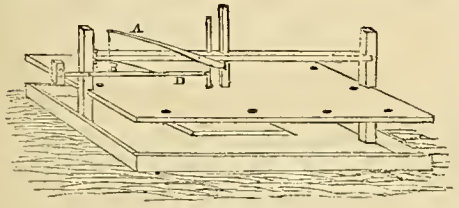
(☞ For other Household Items, see "Basket" pages.)

An Efficient Rat Trap.

BY M. QUINBY.

The engraving represents the best rat trap I ever saw. It is not uncommon for two or three of the vermin to be caught in it at once. I have caught five. The trap is open on every side so that even an old rat, cunning as he is, suspects no danger. When he is fast there is no sight or sound to tell the tale; so that after getting one you can keep right on trapping more in the same place.

The trap consists of a platform of 1½ inch plank, 2 feet square, with a low curb around it; two posts, 14 inches high and 2 inches square, are set inside the curb, midway of opposite sides of the platform; there is a second platform, a trifle smaller than the first, made to drop easily inside the curb; it has several inch holes bored in it so that in falling the enclosed air may easily escape. Notches must also be cut midway of two of its opposite sides to fit the posts which act as guides when the trap springs. The upper platform is raised by a 1×1½ inch standard of hard-wood, mortised into its centre, and passing through a hole cut for it in the cross-piece above. A hook or staple of stiff hoop iron must be screwed to this standard 7 inches from the bottom, to receive the short end of the lever *A*, when the trap is set. Just behind *A* is a rod passing up from the "pan," which is a piece



RAT TRAP.

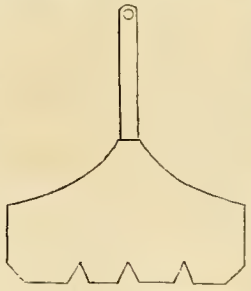
of thin, light wood, 6 inches square, and fitting very loosely in a shallow box cut for it in the lower platform. There should be a quarter-inch hole in two corners of this "pan" through which pass short, upright wires, which are fixed in the bottom but do not reach above the level of the floor. These wires will keep the pan steady when the trap is set. *A* is a lever turning easily and connecting at its extremity by a cord with the lighter lever *B*. The nearer the fulcrums of these levers can be brought to the weights, the easier will the trap spring. Just below *B* is another lever connecting at one end with the upright rod from the "pan" below, playing freely on a wire pivot in the post, and bearing at *C* a weight so adjusted as to balance the weight of the "pan" and rod at the other end.

In the cut the trap is represented as set; the upper platform raised, supported by the short end of the lever *A*, the other being connected with *B*, which in turn is so slightly caught in the notches at *D* that the least disturbance of the "pan" below will detach it and spring the trap. The distance from lower platform to upper when raised is 5 inches

Winter Clothing for Little Ones.

BY FAITH ROCHESTER.

A young child in winter needs garments warm enough to allow of its sitting comfortably on the floor. To be sure it ought not to sit there long at a time. I know it would be an uncomfortable seat for me. I should be cold and should soon get weary in back and limbs. No, baby shall sit mostly in her crib, or in a high chair beside the table. But she will want to creep before warm weather, and I shall wish to have her do so. Creeping soils the clothes, but it strengthens the back, and is a good preparation for walking. Her new garments should reach only to her toes, that they may not be in the way when dear old nurse Nature (who knows better than any one else when these advances should be made) begins to pull the little one upon her feet. She shall have long woolen stockings and home made cloth shoes. These are softer and better than the shoes usually bought for babies who have not learned to walk. It is easy to cut a pattern from a little morocco shoe. Very nice ones can be made of thick broad cloth or cloaking, lined with drilling or strong thin flannel, with the seams laid open and felled down. Her active little legs should not depend too much upon her skirts for warmth. She shall have "knee breeches" such as were invented for her little brother before it was convenient to put drawers on him. I made them of flannel cut in the shape shown in the diagram, with four little gores in the bottom (instead of gathers) and a strong tape fastened to the top, on the end of which was a button to fasten through a hole in the petticoat waist. Being outside the diaper, this strap helps to keep that garment in place. A soft, sleeved, flannel shirt to envelop the arms, chest back and bowels; a warm woolen skirt, with a loose waist buttoned behind, and suspended from the shoulders by easy straps; a lined flannel dress, cut in the pretty style called Gabriella, and a sleeved apron, complete a winter suit for our half year-old baby.



PATTERN FOR BREECHES.

There are mothers who will think this quite too much clothing for a child of that age, especially upon the arms. It is not unusual to see little girls of eight or ten years, who have never in any season worn long-sleeved dresses, a sleeved apron or sack being deemed sufficient protection from cold. Who would think of dressing a boy in that way? What sense is there in such a distinction of dress? Of late, fashion seems to be coming to the rescue, but we cannot put our trust in fashion. We must be guided by common sense. When I see the bare blue arms, and chapped knees, and pale faces of the little ones, I think there is need of mothers who are "strong-minded", in the best sense of the word.

A Codfish Dinner.

An American resident in Rome, a consul we believe, became celebrated for his codfish dinners. He carried one of the staple articles of New England food to the Eternal City, and made famous a dish which some affect to despise. A dinner of codfish cooked by an average Biddy, and one prepared by a good New England housekeeper, present just the difference that is always to be found between things well done and badly done. So simple a thing as codfish can be spoiled. Biddy puts the fish into a pot of boiling water and lets it "wollop" until she thinks it is done. It comes out generally too salt and very tough, is served with potatoes and some greasy paste which she calls "d'hrawn butter". No wonder that such a dinner is not relished. The codfish should first be soaked in cold water, changing the water every few hours until it is fresh enough. It should not be entirely freshened, but left just salt enough to be palatable. It is then put into a kettle, covered with water and brought up to the boiling point, but not *boiled*. Let it simmer gently for 15 or 20 minutes and it is ready to serve. As accompaniment to the fish there are of course potatoes and many add plain boiled beets and carrots, and hard-boiled eggs. We have sometimes seen small bits of salt pork fried crisp and served with some of the pork fat. The proper sauce is butter, which is sometimes simply melted, but more usually made into a sauce with flour and water. This may be made into an egg sauce by adding chopped hard-boiled eggs. The fish, vegetables, etc., are served separately, and each one, being helped to his liking, mixes them upon his plate according to his fancy, the sauce being served last. Mustard, pepper and horse-radish are the condiments most frequently used. In many New England families the regular Saturday dinner is of codfish. What is left is converted into fish balls or minced fish for Sunday morning's breakfast.

Cooking of Game Birds.

A correspondent in Saratoga Co., N. Y., requests us to give some recipes for cooking game birds. This is a difficult matter, as there is so much difference in opinion as to the way in which it should be done. The old directions for a wild duck are for the cook "to run through a warm kitchen with it and serve,"—a way of expressing the idea that the duck should be very rare. Some prefer duck as rare as underdone beef, while at most tables it is served well done. In whatever way it is cooked the duck should be basted frequently in order to preserve its flesh in a juicy condition. Our correspondent asks particularly about woodcock and partridge. The manner in which woodcocks are cooked by epicures is one not likely to be adopted by persons at all squeamish. The birds are plucked without being drawn, and are hung up before the fire to roast, a piece of toast being put beneath them to catch the drippings. They require about 20 minutes, and are basted with butter and served very hot upon the toast. It is considered by "the authorities" as quite the improper thing to remove the entrails of a woodcock, but persons of other tastes cook them differently. Split and broiled quickly, well buttered and served on toast, they are so good that we can forego the delicious morsel of the "trail," as the intestines are called. Partridges, or grouse, and quail, are dry birds, and are cooked in the various ways in which chickens are prepared. If roasted or broiled, the cooking should be done very quickly, and a plenty of butter used for basting. In broiling they are split in the same manner as a spring chicken. Some dip them in melted butter and cover with bread crumbs before broiling, as this, in a measure, prevents them from becoming dry. Either of these birds makes an excellent pie, or they may be stewed with such seasoning as is preferred. A very good way to cook them as well as ducks is to prepare them as for roasting, using stuffing if desired, and place them in a stew-pan with a few slices of pork and a little water, and cook slowly. When the gravy is simmered down and browned, add more water. The birds should be turned occasionally. In this way the birds are kept enveloped in steam, and are much juicier than when cooked in the drying heat of an oven.

Wedding Entertainments.

A correspondent writes: "I would like to inquire with regard to wedding entertainments. What kind of refreshments should be served, if in the forenoon or afternoon. If not taken at the table should the guests stand or sit? Should coffee be served when wine is excluded?"—Among the few sensible decrees of fashion is that which allows the entertainments at weddings to be as simple or as elaborate as the givers are inclined to make them. A glass of wine and a piece of cake are all that are offered in many instances; in others, a table with sandwiches, salads, cakes, etc., as for an evening party, is provided, and this, especially if wines are included, is often a costly affair. A large and increasing number serve no wine, the drinks being lemonade and coffee. The character of the entertainment should depend in a great measure upon the company. If the guests come from a long distance—as is frequently the case in the country, something substantial should be provided in addition to delicacies. Where the wedding takes place early in the day the old English custom of giving a "Wedding breakfast" is a pleasant one, especially if the company is not so large that all cannot be seated at table. At a feast of this kind, cold fowls, tongue, oysters, and other substantials, are given, besides which there are salads, jellies, ice-cream, and the like, with cakes, confectionery and fruit. Coffee, excellent in quality and abundant in supply, is provided. Where it

is not convenient to seat the guests at table, they stand or sit as there may be room. At all events there should be chairs for such elderly people as may be present. Where the majority stand while taking refreshments there is likely to be less of that stiffness and solemnity which frequently attends social gatherings. We do not know that we have given our correspondent a very definite answer. Let her consider what will be the most to the comfort of her guests, and what will comport best with her means, and she cannot go very far wrong.

Washing Fluids.

In December we requested those who had found any fluid or preparation to facilitate washing, to give it for the benefit of our readers. A. D. Reed and others, send us the following: "Put half a pound of unslaked lime and one pound of washing soda in five quarts of water, boil, let it settle, and then drain off. Use a pint of this liquid to every four pailfuls of hot water. Soak the clothes for 20 minutes, rub them lightly, and wring dry; soap well and boil for half an hour; rub again, rinse in clear water, using blueing, wring and hang out to dry." This is really a solution of caustic soda. The washing soda is carbonate of soda and the quicklime is caustic-lime; when the two are boiled together the carbonic acid leaves the soda and goes to the lime, which it converts into carbonate of lime, while the soda is left caustic: i. e., pure soda, dissolved in water. Not having tried this liquid, we are not able to say what effect its continued use would have upon the fabrics.—Mrs. J. S. Sturtevant, Oshkosh, Wis., says: 1¼ pound of washing soda, ¼ pound borax, and dissolve in 4 quarts water by boiling. When the mixture is cold add about one half a teacupful of water of Ammonia (Hartshorn), and bottle for use, taking care to keep the fluid corked from the air. For use take a cupful to a pailful of water. This has for the last six years given perfect satisfaction."

Cleaning Coat Collars.

Mrs. C., Montrose, Md., writes: "For cleaning coat collars and all woolen goods I recommend the Soap-tree Bark (*Quillaya saponaria*) which can be procured at the drug stores. Break a piece about two inches square, into small bits, and pour over it a half pint of boiling water; let it stand an hour or two, then sponge the collar well with the liquor; a second sponging with clear water will clean it nicely. Both washing and rinsing water should be as warm as for flannel. We have by using this bark washed black and blue Empress cloths successfully and have cleaned hair cloth chairs, which had been soiled by contact with the head."

There are several vegetables which are in use in different countries as substitutes for soap. The natives on the North-west coast use a soap root; the Mexicans use one or more vegetables as soap, and the one refered to by Mrs. C., the Soap-tree bark, is largely employed by the Chilians. All these make a lather with water and serve to remove grease without injury to the fabric. The Soap-tree bark has been used to some extent in tooth washes and in preparation for cleansing the hair.

Cooking a Beef Steak.

Mrs. Lucy Lamb says: "The other day a nice looking, tidy, German girl came to work in my kitchen, bringing good recommendations from a family of my acquaintance. When dinner time came I asked her if she could cook the steak: 'O, yes'm,—shall I put grease under it?' Seeing that her ideas of the way of doing it were somewhat different from mine, I got out the gridiron, made ready the coals and proceeded to show her my way. In the first place I cut out the bone and trim off the superfluous fat which would otherwise burn and smoke the meat. If the steak is a good one, it is better not to pound it, as this causes a flow and waste of the juices of the meat, which ought to be preserved. Have the coals abundant and glowing, and the iron hot. Lay the meat upon the bars and place over it a cover made for the purpose. Turn the steak every half minute until it is done. Have the platter *hot* and when ready to take up, scatter daintily over its surface a little pepper and salt. Lay on the hot platter and put bits of butter over it and send to the table immediately. Now this seems a very simple thing, and many readers, perhaps, will say, 'There is no need of telling us how to broil a steak; we know that well enough.' Very true, but there may be a few yet who think the only way is to put the nice loin or porterhouse steak into the frying pan with a generous quantity of 'grease under it,' and let it simmer and stew until it is unfit for a savage, much less for one who values his physical or mental health. It is sometimes difficult to obtain good coals, when the lighter kinds of wood are used, and in such cases I use the frying-pan instead of the gridiron, but never a bit of grease. Have a brisk fire and the pan hot, when the steak is put in; turn often and proceed the same as with the gridiron. Salt should never be added until the meat is done, and the less pepper the better, to my mind."

Chicken Salad.

A lady asks for a recipe for chicken salad. The excellence of the salad depends upon the dressing and the quality of the dressing upon that of the materials composing it. To make a fine dressing there must especially be good oil and a plenty of it. Many have an aversion to olive oil, probably more from the association connected with the name than from any dislike to the taste of the oil itself. When properly incorporated with the other ingredients of the dressing it forms a rich creamy compound in which no trace of oil is visible. We have a number of recipes, but none contain the directions for making the dressing so much in detail as that of Mr. Harrison, which we quote from his book of recipes. The lettuce is not generally to be had in winter nor is it essential. The garnishing with parsley, etc., is merely for ornament, the surface being frequently left without ornamentation.

"Mix one heaping teaspoonful of pure mustard, the yolk of a fresh egg and a teaspoonful of pure white wine or cider vinegar, into a smooth paste, using a silver fork for the purpose. Measure out twelve tablespoonfuls of pure salad oil and one tablespoonful each of vinegar and lemon juice; mix the two latter together and strain them. Add to the egg very slowly, while stirring constantly, two tablespoonfuls of the oil, and when it thickens, one teaspoonful of the mixed vinegar, and thus continue alternately with the oil and vinegar, stirring unceasingly, till all is mixed, and a thick, smooth creamy paste is obtained. Have ready a cold, boiled fowl, remove the skin, bones and fat, and *pull—not cut*—the lean flesh into shreds, the size of large dice; cut into morsels an equal bulk of white, tender, crisp celery, and mix with the meat, a saltspoonful of salt, and one-half the dressing. Cover the bottom of an oval platter with the white centre leaves of well blanched lettuce, and lay the inner green leaves around the border; place the salad upon them, and pour over it the remainder of the dressing. Garnish with a few sprigs of parsley, olives, capers, and slices of hard boiled eggs, neatly arranged around the border. If celery cannot be had, use white cabbage, mixed with a teaspoonful of Extract of Celery."

To Restore Faded Black Lace.—In many a housekeeper's bureau drawers, lie old black lace veils, edgings and head dress, faded and rusty, yet not worn out. By a simple process they can be quickly restored to their pristine beauty. Strain off some black tea from its leaves (having made it too strong to drink), let it cool until milk warm, pour over the lace, and let it stand several hours, then squeeze it very gently, dipping it frequently into the tea, until it shows that the dirt has been extracted. While the lace lies in the tea, boil a little more with a piece of gum arabic, the size of a small "marble," when cool to the hand dip the lace in it for a moment; then clap it in the hands, until nearly dry, carefully pulling out the edges. Pin it over a pillow on which you have spread a newspaper. Let it dry for several hours or even days. Take the pins out, leaving the lace on the paper, remove from the pillow, cover with another paper, and iron with a *coolish* flat-iron. The lace, if not worn out previously, will look as good as new.

Improvement in Farmers' Homes.

There has been a very great change for the better in the homes of all classes of our people within the last thirty years. We think quite a large share of this improvement is found in the strictly rural districts, and is fairly the result of the opportunities and privileges of agricultural life. The average rural parish is the equal of the city parish in intelligence, in good morals, and piety. Social life has not so much show and brilliancy, but quite as much solid happiness. The children coming up in the country have a much better chance of sound health, of a good education, and of a useful career in life. The division of labor, brought about by the introduction of manufactures, has blest the farmer almost as much as any other class. He no longer provides his own clothing or makes his own furniture. He can buy cheaper. The thrifty farmer in the older States has an architect to build his house, and there is taste displayed in the building and in its surroundings. He knows a good deal about fruits and flowers, and what he does not know his wife or daughter does. The flower border is quite up to the town standard. The upholstery may not be quite so attractive, but the floors are carpeted, and the windows have blinds and curtains quite enough for cheerfulness and health. The table is neatly spread, and the chinaware and other appointments come from the same manufactories that furnish city homes. The cookery, especially that part of it furnished by the mistress of the mansion, is above the average in cities. Pianos and melodeons are very common, and the same songs are heard there as in the town, and they are sung about as well. Professional singers do not go to the country for their audiences, but the country comes to them and furnishes a fair share of their appreciative listeners and admirers. There is leisure in the country, time for reading and reflection, plenty of newspapers and magazines, and the village library has its numerous patrons in farmers' homes. Farm life in this age of railroads and steamers is quite different from the life led by our fathers. It moves in the right direction.

Hints on Cooking, Etc.

Pumpkin Pies.—Mrs. S. Hannahs, Portage Co., O., says: "Pare the pumpkin, then grate it, and add sugar and ginger to taste, and milk enough to make it of the proper consistency; then line your pie-tins with crust, put in your pumpkin, and bake in the ordinary way. After trying this once, no one will, I think, wish to go back to the old way of making pies of stewed pumpkin."

Cream Pudding, by Miss M. M. F., Westchester, Mass.: 6 tablespoonfuls of flour, 1 quart milk, 3 eggs, 1 teacupful sugar, salt; take a little of the milk and stir with the flour, to make a batter, and boil the remainder. When the milk boils, add the batter and when sufficiently cooked, take it off and stir in the eggs, beaten. Sift a part of the sugar in the pudding dish, then pour in the pudding, and put the rest of the sugar on top. Flavor to taste, and cover tightly until cold.

Mangles.—Miss E. A. C., Flatrock, Pa. The English mangles take up too much room and require too much power to find favor with our housekeepers. Some small ones have been invented, but their operation so far as we know, has not been such that they have met with any considerable sale. Here is a chance for inventors.

BOYS & GIRLS' COLUMNS.

Rambles in China.—A Fish Story.

BY "CARLETON."

I think of myself as sitting by some one of the thousands of pleasant firesides in the United States amid a group of boys and girls. We toast our toes, tell riddles and stories, and make the room ring with our laughter. As it is my turn to give a story, I shall tell you, my young friends, about what is going on right down beneath our feet in China. I was down there a few months ago. It is a country where old men as well as boys fly kites, walk on stilts, and amuse themselves by making enormous paper dragons, with bodies like snakes, fifty or one hundred feet long, and as large as a flour barrel, with huge claws and great mouths wide open, and goggle eyes flaming with fire. The lanterns that light the streets of the cities are as large, almost, as hogsheads. In that country there are several million people who live in boats, sleeping in drawers built into the sides of the boats. They hatch ducks and chickens in ovens, rear them in flocks,—letting them into the water two or three times a day, just as you are let out of school at recess for a grand frolic. The master calls them back by a whistle, and gives the tardy ones a good drubbing for being behindhand. Possibly some of you could tell me a story about being late in from recess.

The Chinese are ahead of us in some things, especially in catching fish. Years ago, when I was younger than I am now, I loved dearly to go-a-fishing. There was nothing that so set me on tiptoe. I remember the first fish I ever caught, it was a horn-pout, with a mouth split from ear to ear, only I never could find his ears; it was wide enough for him to swallow himself! He had long smellers, and was a tremendous fellow. My alder fish-pole bent almost double as he pulled and tugged at the line, but I got him into the boat at last. Didn't he bounce around? I have seen whales since, but he was bigger than a whale—at least so I thought then.

The fact is, he was a little fellow, and my father took the conceit out of me by saying, he wasn't worth dressing; but I carried him home, and had him go into the frying-pan, and there never was a sweeter morsel than he made. *I* caught him, and that was what made the breakfast one of the best ever cooked. What we accomplish ourselves is of more value to us than what others do for us.

The Chinese are very fond of fish, and hundreds of thousands of people fish for a living.

Let us in imagination think of ourselves as being in China, sailing up the great river Yang-tse, which, you will see by looking at your school atlas, is nearly as large as the Mississippi. It rises in Central Asia, and flows through the heart of the Empire to the sea. You see a great many boats filled with men, women, and children. The boats are their homes. They live in them from childhood to old age—father, mother, grand parents, and children, with pigs, ducks, chickens, cats, and dogs.

Two boats sometimes move side by side, a few rods apart, with a long net or seine between them: after rowing a while, they come together, draw in the net, and take out the fish.

As you sail along the shores, you see a great many contrivances that look like well sweeps. A tall post is driven into the ground just in the edge of the water, and a long pole tilted upon it reaches twenty or thirty feet out into the river. A net attached to the pole drops into the stream. The fisherman sits on the bank in a little hut not much larger than a dog's house, and every few minutes he pulls down his end of the pole, which, of course, raises the other and lifts the net from the water. If he catches three or four fish a day, he is content, for his wants are few, and it does not cost him much to live.

The Chinese catch a great many fish without hook, or line, or net. I don't believe that you can guess how they do it. Try now...."*By driving the fish into a pen?*"

No. I have seen people do that—making a wicker-work fence of stakes and withes, and then splashing the water to frighten the fish; but the Chinese don't do it in that way... "*By a pot?*"

No; you have n't hit it. I used to do that—making a dam across a brook in my father's meadow, and weaving a basket, or pot, as we called it, large at both ends, tapering like a tunnel in the middle, with a hole leading to a box, with sharp spikes pointing in one direction set around the hole. The suckers and trout could go in, but to get out was another matter...."*By spearing them?*"

No; the Chinese do not have such glorious fun as I enjoyed in my boyhood, at night, with a pitch-knot torch flaming in a jack at the bow of a boat. How exciting to see a great pickerel with yellow sides lying motionless in the water! And then to let him have it right back of the gills and draw him in before he could tear himself away! Ah! that was fun.

As you cannot guess, I will tell you. The Chinese fish with birds...."*With birds!*"

I thought that you would open your eyes wide. Yes, with birds about as large as geese. They have sharp bills, are brown in color, and are exceedingly nimble. They are tame sea ravens or cormorants. They live on fish, and have voracious appetites. They will eat their own weight in fish in a few hours. They seem to be always hungry. The more they have, the more they seem to want. Being always hungry, they are exceedingly active. They have sharp eyes, large wings, web feet, and swim very fast. They dive as quick as a flash.

Look at that one swimming in the stream—on the watch for fish. There he goes! In a twinkling he is out of sight. Here he comes with a fish in his mouth, which is struggling to get away, but the raven holds him fast and swims to his master's boat, where he is taken aboard. He cannot swallow the fish because his owner has slipped an iron ring upon the poor creature's throat. He lays the fish down and waits until the ring is taken off, and then he can only have a morsel of fish, just enough to sharpen the appetite, and make him wide awake for more. The owner strokes the bird's head, calls him a good fellow, and throws him into the water for another venture.

Down he goes again. A minute passes. Here he comes! but without a fish. He gets a whipping now. He can have no luncheon until he catches another.

If we go into a city or town anywhere in China, we shall see large fish markets, not little sheds with here and there a table with a few flounders, perch, cat fish, pickerel or trout upon it, and a tubful of eels, as in our own markets; but we shall see great tanks, filled with running water with thousands of live full-grown fish in them. They have been brought in from the breeding ponds in the country, where they were hatched and reared, fed and fattened until fit for the market. It cost but a trifle to rear them, and here they are, lusty fellows, weighing two, three, four, and five pounds. When the people come to market, they select such a fish as they want, the market man catches t in a hand-net, dresses it on the spot, and the customer carries it home for his dinner. "From the tank to the frying pan" is the Chinese proverb about fish.

We may learn something from the Chinese in regard to fish culture. Nearly all the fish eaten in the United States are brought from the sea, or caught in the lakes and rivers. A few men have begun to raise fish for the market, and have found it very profitable. It is easy to do, and there are many boys who live on farms where ponds might be made in which they could rear fish for the market, just as they now raise turkeys, chickens, ducks, geese, pigs, and sheep.

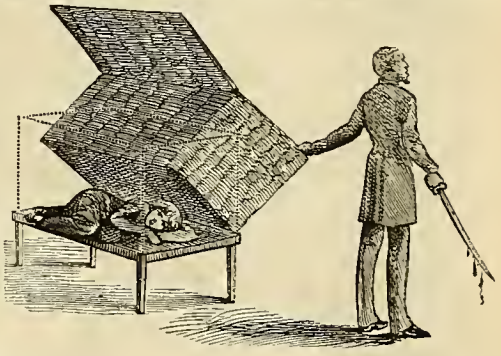
The market men would find it profitable to build tanks, supply them with water, and keep their fish alive until called for by their customers. In warm weather there would be no loss from stale, unsold fish, and then the fish would be a great deal better if cooked immediately after being taken from the tank.

I know that some of my young friends will say this is a "Fish Story." But it is true for all that, if you do not believe it, just go around to the other side of the world and see for yourselves. If you do not get away too soon, however, I shall have more to tell you about that wonderful country and the queer people that live there.

How a Palace is Lighted.—It is said that one of the European palaces burns ten thousand wax candles nightly. The candles are put in their places and connected by a web of gun-cotton, which passes from wick to wick. When one end of this chain of gun-cotton is lighted it flashes instantly from one candle to another, and all in the room are lighted at once. The gun-cotton is prepared with some kind of perfume, and at the time it burns an agreeable odor is diffused in the room. That will do very well for a palace where candles are burned, but in some of the large halls in New York which are lighted by gas, all of the hundreds of burners are lighted by electricity. A fine wire, so small as not to be noticeable, passes from one burner to another, and is so arranged as to give a minute spark at each. By a single movement of a key attached to the electrical apparatus the gas throughout an immense hall is lighted "as quick as a flash."

The Magician's Basket Trick.

Some of the performers of legerdemain show the "Mysterious disappearance of a young lady." A large covered basket is placed upon the stage and a young lady steps from the audience and is blindfolded. The performer opens the basket and tips it towards the spectators that they may see that it is all right inside. The young lady is assisted into the basket and the cover is shut down, the basket being inclined forward the magician stabs it in various places with a small sword; screams are heard, and the lid of the basket is opened when it is found to be empty. The audience usually become greatly excited, and during the confusion the young lady appears among them, and takes her place as if nothing had happened. To do this trick, two young ladies of the same size, and dressed exactly alike, are required, and both are "confederates" of the performer. The basket has two false bottoms. One in the proper place and the other folded up against one of the sides. The young lady is blindfolded as soon as she steps upon the stage in order that her features may not be remembered. When she is in the basket it is tipped forward. She lies upon one false bottom and pulls the one which was folded up against the side down over her. When the basket is tipped forward and opened, it of course appears empty, the second false bottom taking the place of the first, while it screens



THE BASKET TRICK.

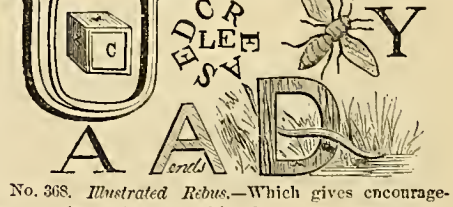
the girl from sight. The engraving shows how she is concealed. The second girl dressed exactly like the first now enters, and while she attracts the attention of the audience, the basket with the stool on which it stands, and girl No. 1, are carried off by assistants.

An Irishman went to live in Scotland for a short time, but didn't like the country. "I was sick all the time I was there," said he, "and if I had lived there till this time I'd been dead a year ago."

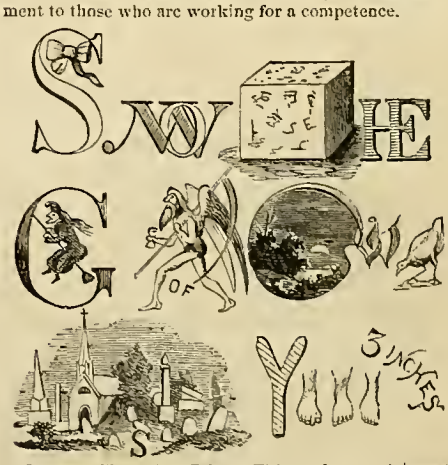
Answers to Problems and Puzzles.

We have either lost or mislaid a list of those who have sent us recent answers, but we hope this will not deter them from sending again. The following are the answers to those which appeared in November and December. No. 363. Take the B's away from Bread and Butter and they will read and utter.... No. 364. A horse, a horse, My kingdom (Mike-in-G-dome) for (4) a horse. (A H o'er sea). .... No. 365. A must dig $42\frac{6}{7}$ yards, and B $57\frac{1}{7}$ yards....No. 366. In some things all, in all things none are blest.—Things in the word some, awl-things in awl, Nun-R-bee-les-tea.

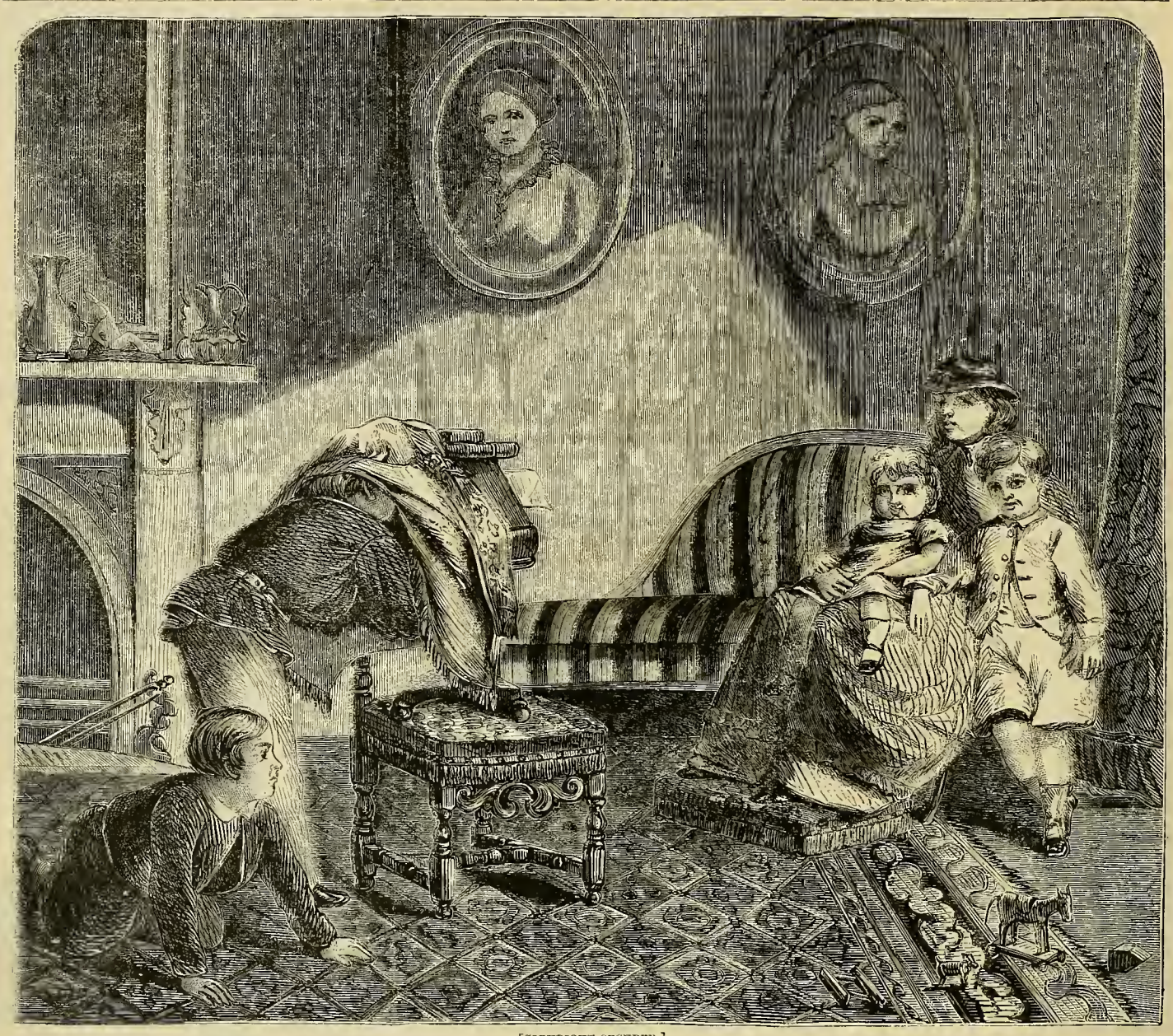
No. 367. *Illustrated Conundrum.* Why is the man in the picture like a great swearer?



No. 368. *Illustrated Rebus.*—Which gives encouragement to those who are working for a competence.



No. 369. *Illustrated Rebus.*—This makes a statement which we do not believe a word of if Shakespeare did say it.



[COPYRIGHT SECURED.]

THE YOUNG PHOTOGRAPHER.—*Drawn and Engraved for the American Agriculturist.*

Master Frank has been to the photographer to have his picture taken. He was much interested in the whole operation. The artist took great trouble to get the active little fellow in the right position, then he pointed a curious machine of wood and brass, which he called a camera, directly at him. The camera had a black cloth under which he hid his head while he was "taking aim," as Frank said, but he was really adjusting the focus, or getting the glass in the right position. When all was ready, Frank was told to look at a particular spot and not move until he had permission. The man took out his watch and Frank sat as quietly as so fidgety a little fellow could. How long the time seemed! He thought of his schoolmates, wondered if he would get a pair of skates on Christmas, counted the panes of glass in the window, and when he thought he could bear it no longer, the operator said "that will do; just a minute." A minute! It seemed to Frank as if a good part of his existence was being passed in that chair, and it was only 60 seconds. Frank was so much interested in his experience at the photographer's that when he went home he must show his sisters how it was done. He has very ingeniously fitted up a camera with the aid of the piano stool, some books and a table cover, and having the girls in position is pretending to arrange his instrument. The girls are doing their part well, for they have just the resigned look that most people put on when they have their pictures taken. Frank is just such a boy as we like, he puts some imagination into his amusement and no doubt gets more fun out of his make-believe camera, with his sisters for sitters, than some boys would from a costly toy.

A little girl was one evening watching an approaching storm, when she saw a bright flash of lightning. "Oh, mamma!" she cried, "see the dark open."

Artificial Duck Hatching in China.

The *Agriculturist* goes all over the world, and we sometimes get very interesting letters from friends who live in far-away places. Most of our Boys and Girls have read about the Chinese, and what numbers of ducks they raise, which they keep in boats. We do not recollect to have before seen an account of the way the Chinese hatch their ducks, but our correspondent, "J. D.," at Foochow, in China, tells how it is done.

"Immense numbers of duck eggs are annually hatched at this and many other places in Southern China. The season for hatching usually closes here in September, after having lasted about six months. Hens eggs can be readily hatched by artificial heat, but the young thus hatched do not thrive without maternal care, and soon die or are sickly. Young ducklings flourish amazingly without the care of a mother duck. In the summer time, in the adjacent country, one sees many companies of juvenile ducks, amounting oftentimes to hundreds in a flock, feeding by the river-side, and on the low rice lands. They are transported from place to place by means of boats. They are easily collected together by their keeper, and are taught to embark or disembark by means of a plank. Some keepers are in the habit of whipping gently the ducklings who are the last in marching into the boat when called. This they learn to be the penalty of being late aboard, and consequently there is considerable strife and hurrying to get on board. Near Canton, five or six years ago, I saw 5,000 ducklings in one pen. Each establishment here for hatching duck eggs, is fitted up with some eighteen or twenty large tub-like vessels. Nets resembling small fish nets, are used, into each of which are put eighty duck eggs, with the date of commencing written upon each egg. The net is then drawn loosely together by a small cord passing through the meshes on the edge. The operator by taking hold of the top of the net-like bag, lifts the eggs and arranges them in the tub, the centre of the bottom being raised a few inches higher than the sides. One set of eighty is arranged around the outside of the bottom, and another set is placed in the middle of the bottom, viz.: the space not occupied by the first set, two sets exactly filling up one layer on the bottom. Another net of eighty eggs is placed on the top of the first set, and a fourth set is put on the top of the second, and so on. Sometimes as many as seven layers of eggs are put in a tub. The tubs being covered with old cotton, are first arranged in one or two rows, a short distance from the floor, those in the same row being as close to each other as possible. Along the sides of these rows, straw mats are used so as to retain the heat which is generated beneath the tubs. The material burned to produce artificial warmth is usually charcoal, placed beneath some of the tubs. The tubs gradually become warm, as do the eggs within them. The operator has no instrument by which to judge of the degree of heat required. Experience is his criterion. Every three days the eggs are examined, and at each time some new sets are added, so at the end of thirty days from the commencement of this artificial incubation, several sets of eggs are ready to hatch. On the third day from the time that new sets are put into the tubs, they are carefully examined by the operator, to see whether any are not likely to hatch. This is ascertained by holding each between the eye and the sun. A skillful operator can generally tell in this way which eggs will produce ducklings and which not. These latter are laid aside for sale, as food, while the former are retained and treated in the way described, for 27 days longer. Each establishment has ducklings for sale, every three days after the first month.

OUR YOUNG FOLKS

FOR 1870.

The following are among the prominent features of OUR YOUNG FOLKS for 1870:—

Mrs. A. D. T. WHITNEY, author of "*A Summer in Leslie Goldthwaite's Life,*" will contribute the leading serial story, entitled

"WE GIRLS: A STORY OF HOME LIFE."

Dr. I. I. HAYES, the distinguished Arctic explorer, will give some graphic sketches of

LIFE AND ADVENTURE IN THE POLAR REGIONS.

Col. T. W. HIGGINSON will furnish a series of valuable articles describing the habits and characteristics of

THE BEAVER, THE ELEPHANT AND OTHER ANIMALS.

"**CARLETON,**" author of "*Winning His Way,*" and "*Our New Way Round the World,*" will contribute several papers of great interest, relating what he saw in China during his recent tour of the globe.

Mrs. PROFESSOR AGASSIZ will continue her instructive and fascinating account of "*The World on which we Live,*" describing the early ages of the earth, and some of the animals that then inhabited it

Mr. T. B. ALDRICH, author of the universally popular "*Story of a Bad Boy,*" will contribute regularly.

Mrs. A. M. DIAZ, author of the inimitable "*William Henry Letters,*" will continue her charming Stories and Sketches.

Mr. JAMES PARTON, whose articles on Voyages and Discoveries have been received with so great favor, will furnish additional articles of the same general character, communicating in an attractive style many interesting and important facts of Geography and History.

Mr. J. T. TROWBRIDGE will continue his remarkable series of papers on curious branches of Industry, Building Steam Engines, etc. He will also describe, from careful observation, the Departments at Washington, showing how the business of our Government is carried on.

Rev. E. E. HALE will furnish articles in his peculiar vein, entitled "Letters to my Nephew," communicating the best practical information with a wealth of illustration and a vigor of style altogether fascinating.

Major TRAVERSE, a very entertaining writer, will furnish articles containing a great deal of curious and valuable knowledge on a wide variety of subjects.

POMPEIAN PAPERS.—A series of remarkably interesting papers on Pompeii will be given, telling how it was buried by an eruption of Vesuvius hundreds of years ago, and how it is now being restored, and what curious things are found among the ruins.

REGULAR OR OCCASIONAL ARTICLES will be contributed by JOHN G. WHITTIER, HARRIET BEECHER STOWE, J. H. A. BONE, LUCY LARCOM, MISS E. STUART PHELPS, NORA PERRY, MRS. THAXTER, ROSE TERRY, GEORGE COOPER, the Author of "Seven Little Sisters," MRS. JANE G. AUSTIN, AUNT FANNY, and other writers whose names are a passport to the affection of all intelligent youthful readers.

The **EVENING LAMP** and **LETTER BOX** Departments will be carefully attended to, and will contain a rich variety of Charades, Enigmas, Puzzles, Rebuses,—and familiar talks by the Editor on the thousand matters of every-day interest to young people.

FULL-PAGE and SMALLER ILLUSTRATIONS, from the best artists, will add to the value and attractiveness of the Magazine.

No effort or expense will be spared to make *OUR YOUNG FOLKS* a worthy and welcome visitor in every school-room and family circle in America.

☞ *Cash Prizes, from $10 to $30,*

Will be given for the best Original Charades, Puzzles, Rebuses, and Compositions.

☞ *Cash Premiums, from $5 to $300,* will be given for the largest Clubs.

CIRCULAR containing full particulars sent *free* to any applicant.

TERMS.—The price of OUR YOUNG FOLKS is $2.00 per year. An extra copy gratis for every five subscriptions. OUR YOUNG FOLKS and Atlantic Monthly, $5.00 per year.

FIELDS, OSGOOD & CO., Publishers,
124 TREMONT STREET, BOSTON.

Amateur Cultivator's Guide

TO THE

KITCHEN AND FLOWER GARDEN.

Twenty-fourth Annual Edition of this popular and useful work, which has met with so much favor in the past, is now ready. It has been re-written and improved, printed with new type, and on fine paper; illustrated with a beautiful lithograph, and many other fine engravings from nature. It contains full description and the culture of over 1,500 leading varieties of Flowers and Vegetables. Also descriptive list of the Novelties, both Flowers and Vegetables, of the present season, to which is added a collection of 200 choice French Hybrid Gladiolus. This work has been prepared regardless of care and expense, and we feel confident that it will compare favorably with any other similar work.

The following testimonials are unsolicited by us, and can be multiplied by hundreds:

From LEVI BARTLETT, Warner, N. H.

"I have received a copy of your superbly gotten-up 'Amateur Cultivator's Guide.' I think it far ahead of anything of the kind ever before issued from the American press. Please accept my warmest thanks for your kindness in forwarding this gem of a book to my address."

From E. S. RAND, JR., Dedham, Mass., author of "Flowers for the Parlor and Garden."

"Accept many thanks for the beautiful copy of your Annual Catalogue. I find much that is new and rare therein. The arrangement, the concise cultural instructions, copious illustrations, and clear typographical execution, all combine to make it a model catalogue. I shall often have occasion to refer to it. It cannot fail to be of great use and interest to all horticulturists."

From J. HOPKINS, M.D., Madison, Wis., Pres't State Hort'l Soc., and Cor. Member of the Royal Hor'l Soc'y of Eng.

"Please accept my thanks for your 'Guide.' I think you ought to call it the 'Garden Companion.' It is at once very usefully and conveniently arranged; a sort of ready-reference book, very ornamentally got up; one of those few books I find fitted for any table; often wanted, and always at hand."

From A. S. FULLER, Hort'l Editor of "The New York Sun."

"There is no use in denying the fact that Washburn's Catalogue is the handsomest thing of the kind ever got up in this country."

This work is published for the benefit of our customers, to which it will be sent free; and will be sent to any address upon receipt of 25 cts. for paper cover, and 50 cts. for tastefully bound in cloth.

WASHBURN & CO.,

Horticultural Hall, Boston, Mass.

FERRE, BATCHELDER & CO.'S ILLUSTRATED CATALOGUE

of Seeds and

VEGETABLE AND FLOWER GARDEN

MANUAL for 1870, will be ready for distribution early in January. It will contain about 100 pages, with numerous illustrations—a complete list of Vegetable and Flower seeds, to which will be added a list of **Summer-Flowering Bulbs, Plants and Small Fruits.** Sent to all applicants **enclosing 10** cents. Our customers supplied without charge. Address

FERRE, BATCHELDER & CO.,

231 Main St., Springfield, Mass.

TO THE SEED TRADE.

We shall be pleased to mail to DEALERS ONLY our **NEW WHOLESALE PRICE-LIST OF SEEDS FOR 1870.**

J. M. THORBURN & CO., 15 John st., New York.

New Tomatoes.

ALGER.—This new variety has the same potato-like foliage as Keyes', but the fruit is larger, of good market size, early and very productive, 15 cts. per package.

GEN. GRANT.—Remarkably solid, round, flat in shape, handsome, and of excellent quality. Received the first premium for the two past years at the Annual Exhibition of the Mass. Hort. Society, 15 cents per package.

CRIMSON CLUSTER.—Early, grows in large clusters bearing handsome fruit, oftentimes elegantly spotted with gold, 15 cents per package.

MAMMOTH CLUSTER.—Very large, round, crimson, 15 cents per package.

BOSTON MARKET.—The result of most careful selection by the Boston market-men for a series of years; large, flat, round, solid; enormously productive, 15 cts. per package.

EARLY ORANGEFIELD.—An English sort, yields its fruit in large clusters. This Tomato is of a peculiarly rich and sweet flavor, and excellent as fruit for dessert, 15 cts. per package.

Also the following excellent varieties at 10 cts. per package. Early York, Dwarf Scotch, Keyes' Early Prolific, Yellow Fig, Maupay's Saperior, Cherry, Large Yellow, Feejee, Cook's Favorite, Lester's Perfected, Large Smooth Red, Tomato De Laye, Tilden, New Mexican, Strawberry, or Ground Cherry.

All of the above are of my own raising, each grown isolated, scattered over three square miles of territory. Catalogues free.

JAMES J. H. GREGORY, Marblehead, Mass.

CATALOGUES FREE.

E. NEWBURY,

Seedsman & Florist, Brooklyn, Conn.

Importer and dealer in all kinds of Flower Seeds, Gladiolus, Tuberoses, Japan Lilies, and Bedding Plants. Catalogues ready early in January, and FREE on application.

Brooklyn, Jan. 1, 1869.

I WILL SEND A PACKAGE of the celebrated Altoa Nutmeg Melon and my Catalogue for 1870, to all persons enclosing a three-cent stamp. Read my advertisement on this page.

WALDO F. BROWN,
Box 75, Oxford, Butler Co., Ohio.

HOVEY & CO.,

IMPORTERS AND DEALERS IN

Vegetable, Flower and Agricultural Seeds, Fruit and Ornamental Trees, Green-house and Hardy Plants,

53 North Market Street, Boston, Mass., and Cambridge Nurseries, 2 Miles from the City.

We invite the attention of our friends and customers, and all who are interested in the growth of beautiful Flowers and Choice Vegetables, to

Our New Illustrated Guide

TO THE

Flower and Vegetable Garden,

AND CATALOGUE OF SEEDS FOR 1870.

The 37th Edition, Revised, enlarged and improved, containing 148 pages, profusely illustrated with more than 100 fine Engravings.

A BEAUTIFUL COLORED PLATE,

and a descriptive list of more than 2,500 varieties of Flower and Vegetable Seeds, embracing every novelty introduced in 1869, with full and plain practical directions for the culture of Flowers and Plants, the arrangement of the Garden, &c. Also a descriptive list of 150 varieties of the best French Gladiolus, including the superb new varieties of 1869, now first offered here, all the fine summer-flowering bulbs, such as Lilies, Tuberoses, Tigridias, &c., together with every Requisite for the garden. A copy mailed to every applicant on the receipt of 25 cents. Our customers supplied free of charge. Address

HOVEY & CO., 53 North Market Street, Boston.

Gregory's Annual Catalogue of Choice Garden and Flower Seeds.

Having in former years introduced to the public the Hubbard Squash, American Turban Squash, Marblehead Mammoth Cabbage, Mexican Sweet Corn, Brown's New Dwarf Marrowfat Pea, Boston Curled Lettuce, and other new and valuable vegetables, with the return of another season I am again prepared to supply the public with Vegetable and Flower seeds of the purest quality. My Annual Catalogue, containing a list not only of all novelties, but also of the standard vegetables of the garden (over one hundred of which are of my own growing) and this season for the first time a carefully selected list of flower seeds will be forwarded *gratis* to all. Sent without request to my customers of last season. All seed purchased of me *I warrant to be fresh and true to name, and that it shall reach the purchaser.* Should it fail in either of these respects I will fill the order over without additional charge.

JAMES J. H. GREGORY, Marblehead, Mass.

Fresh Garden, Flower, Fruit, Herb, Tree, Shrub, and Evergreen

Seeds, with directions for culture, in large or small quantities, prepaid, by mail or otherwise. Twenty-five sorts of either for $1.00, prepaid. Send for Priced List. Seeds on Commission. Agents wanted. Wholesale lists ready. Also Small Fruits, Plants, and Bulbs, &c., by mail, prepaid. B. M. WATSON, Old Colony Nurseries and Seed Warehouse, Plymouth, Mass. Established 1842.

Lilum Auratum and New Coleus.

Seeds of Japan Lily Melpomene, carefully fertilized with L. Auratum. In packets of 25 seeds, $1.00, post-paid. New Coleus, carefully fertilized seeds of the choicest new kinds In packets of 20 seeds, 50 cents, post-paid. We offer the above from our own collection, carefully hybridized, and likely to produce some superb varieties. Address

HOVEY & CO., 53 North Market St., Boston, Mass.

Grafting Grape-vines.

The process of grafting grape-vines is entirely simple, being ordinary cleft-grafting, and can be done by the most common workman who is handy in the use of the knife.

"Grafts carefully inserted, grow with surprising rapidity and vigor, and the method affords a very easy way of replacing an indifferent or worthless variety of grape with a good one. If properly done, the risk of failure is very small."—*American Agriculturist.*

We have issued a circular giving full particulars how and when to graft vines, which will be sent to all applicants.

See advertisement, page 429, of November *American Agriculturist.* Address

HASBROUCK & BUSHNELL,
"IONA," near Peekskill, Westchester Co., New York.

Trees, Plants and Grape-vines.

20,000 Early May or Richmond Cherry trees, handsome and thrifty, with well formed heads, 2½ to 4 ft., $150 per M; 4 to 6 feet, $200 per M. Extra fine, 6 to 8 ft., $250 per M. By the 100 at M. rates.

Apple Trees, 2 years, leading best varieties, $75 per M. 50,000 Concord Grape-vines, 2 years, strong plants, $35 per M. No. 2, $25 per M.

Ives', 2 years, $50 per M. Terms Cash, or C. O. D.

HENRY AVERY,
Burlington, Iowa.

Bloomington (Ills.) Nursery.

19th Year! 500 Acres! 10 Green-houses!

Send 10c. for Catalogues. F. K. PHOENIX.

Marblehead Mammoth Cabbage!

This is the largest cabbage in the world, sometimes weighing over sixty pounds each, and averaging as high as thirty pounds by the acre! It is not only large, but cannot be surpassed for reliability for heading, tenderness, and sweetness. As some cultivators have an impression that this cabbage cannot be fully matured outside of Marblehead, I invite their attention to the following extracts from among the many commendatory letters which I have received.

"Your Marblehead Mammoth Cabbage cannot be excelled. There were heads weighing 50 lbs., and heads of Fottler's Improved Brunswick (from your seed) weighing 40 lbs.—John H. Howlett, Charlestown, Ill."

"I raised from your seed Marblehead Mammoth Cabbages that weighed 50 lbs.—A. H. Mace, Clintonville, N. Y., Nov. 14th, 1869."

"Your Marblehead Mammoth Cabbages were very fine, they all headed well, and weighed 27 to 40, and 47 lbs.—W. Llewellyn, Red Wing, Minn., March 12, 1869."

"Your Marblehead Mammoth Cabbages are wonderful; they grew to the size of an umbrella.—Thomas Flanigan, Palermo, Kansas."

"The Marblehead Mammoth Cabbages were a perfect success. They headed well, and were three times as large as any cabbage I ever raised before.—J. F. Butt, Koscinsco, Miss."

"I have raised your Marblehead Mammoth Cabbage for two years, and it has proved the tenderest and sweetest cabbage I ever saw.—S. S. Groves, Stones Prairie, Ill."

John Van Wormer, Springs' Mills, Mich., raised some weighing 30 lbs. John Humphreys, Titusville, N. Y., 33¾ lbs. M. D. Clark, Elyria, Ohio, 37 lbs. H. A. Terry, Crescent City, Iowa, 40 lbs., measuring 56 inches around the solid head. Thos. A. Lambert, Becancour, C. W., exhibited three cabbages weighing respectively 40, 42½, and 44 lbs. John W. Dean, St. Michael's, Md., has grown them weighing 33 lbs. S. M. Shuck, Preston, Minn., 36 lbs., when trimmed. E. H. Ellis, Etna Green, Ind., over 30 lbs. A. E. Garrison, Des Moines, Iowa, 30 lbs. James S. Allen, Union Springs, N. Y., 30 lbs., when stripped of loose leaves. Wm. Lee, Jr., Denver, Colorado, has grown heads weighing 45 to 50 lbs., as a penalty for which the miners of the mountains call him the 'Big Cabbage Man." Leonard Choat, Denver, Colorado, raised one which weighed 46 lbs. when trimmed of waste leaves. Collins Eaton, Ogdensburgh, N. Y., 50 lbs. P. Sweeney, Loretto, Pa., 43 lbs. Sam'l B. Ornsbee, Rolling Prairie, Wis., 53 lbs. Chas. W. Oden, Little Sioux, Iowa, produced quite a lot weighing from 50 to 60 lbs. A. C. Van Tassal, 59 lbs. trimmed. A. C. Goodwin, Kennedy, N. Y., 45 to 50 lbs. W. H. Spera, Ephrata, Pa., raised fifty heads that averaged over 31 lbs. each. Wm. D. Munson, Burlington, Vt., raised some weighing 46 lbs. Mary B. Sellman, Galesburg, Iowa, 28 to 43 lbs. stripped of loose leaves. Hundreds of others have written me that they have "taken all the prizes at the County Fairs." "Raised the largest cabbage ever seen in the country." "Astonished all their neighbors." "That in sweetness, crispness, and tenderness, they were unequalled," etc., etc. As the original introducer of the Mammoth Cabbage, I am prepared to supply seed grown from *extra large heads,* at following prices, by mail, post-paid: Per package, 25 cts.; per oz., $1; 4 ozs., $3.50; per lb., $12.

Full instructions for cultivation accompanying the seed.

Catalogues free. JAMES J. H. GREGORY,
Marblehead, Mass.

C. G. CRANE & CO.'S

Celebrated Garden Seeds.

Our Annual Catalogue of Vegetable and Agricultural Seeds

FOR

1870,

With directions for ther cultivation, has just been published, And will be mailed free on application to

C. G. CRANE & CO.,
449 Broad St.,
Newark, N. J.

Trade Price List for Dealers Only,

NOW READY.

25 CTS.—RAISE YOUR OWN LARD KEGS.—25 cts. per package. I have raised for 28 years the Sugar Trough Gourd, and have found them the best lard cans I ever used. They make the cheapest and best vessels for sugar troughs, and are convenient for many household purposes. They hold on an average from 1 to 2 common wooden bucketfuls, and often from 8 to 10 gallons, and I have one that I exhibited at the AGRICULTURIST office that holds over eleven (11) gallons. They are very strong and will last a lifetime, and are as easily grown as the common pumpkin. My Catalogue for 1870 tells how to grow them, and contains a price list and description of 150 varieties of vegetable and flower seeds. Send for it. Address

WALDO F. BROWN, Box 75, Oxford, Butler Co., O.

Thorburn's New Catalogue for 1870.

Our ANNUAL DESCRIPTIVE PRICED CATALOGUE of Vegetable and Agricultural Seeds for 1870, is ready for mailing to applicants.

J. M. THORBURN & CO., 15 John St., New York.

Work for the Winter.

LIVE, WIDE-AWAKE AGENTS AND CANVASSERS wanted. Pleasant business and large pay for little work.

☞ See advertisement, page 429, Nov. American Agriculturist. HASBROUCK & BUSHNELL,
Iona, near Peekskill, Westchester Co., N. Y.

Andre Leroy's Nurseries,

at Angers, France, the most extensive in Europe.

For Catalogues apply to BREGUIERE & THEBAND,
P. O. Box 15. 51 Cedar St., New York.

CURTIS & COBB'S

PERFECTLY RELIABLE SEEDS.

ILLUSTRATED CATALOGUE.

The undersigned would inform their friends and the public that the SEVENTEENTH ANNUAL EDITION of their ILLUSTRATED SEED CATALOGUE, and FLOWER AND KITCHEN GARDEN DIRECTORY, with price of Seeds, Gladiolus Bulbs, Select Small Fruits, &c., &c., will be ready for mailing early in January, and will be sent to all applicants enclosing TWENTY-FIVE CENTS. Old customers supplied without charge; and should any such not receive it in due time, we will thank them to notify us. Our Catalogue has been frequently pronounced one of the best issued, and our endeavor will be to keep it fully up to its present high place amongst its competitors. Please forward orders early to

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The following varieties of cabbage seed I grew this season on my three Seed Farms, all perfectly isolated, scattered over an area of three square miles. You will find them all fresh and true.

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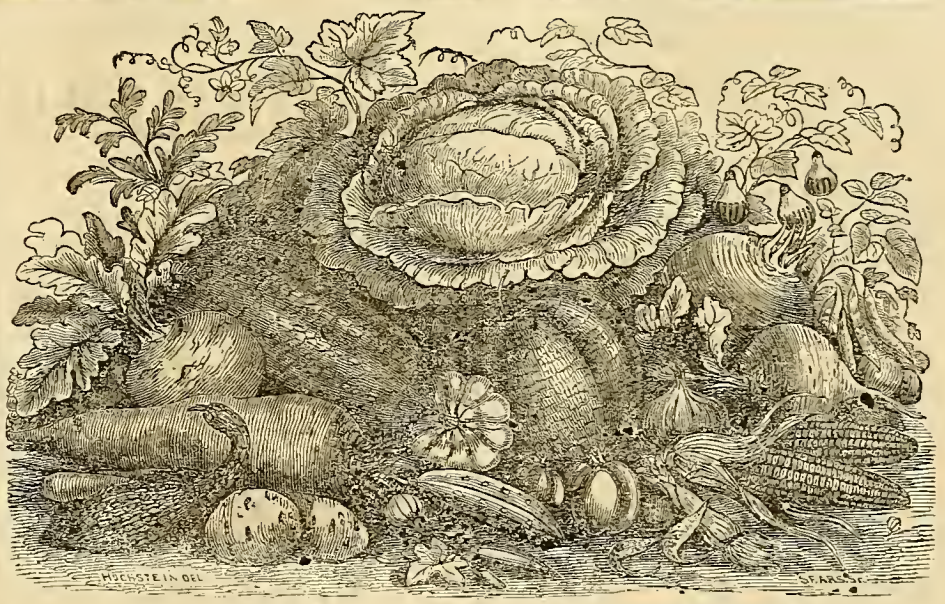

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No pains or expense have been spared in preparing this edition, to make it the most complete work of the kind ever published in this country.

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FOR SALE.
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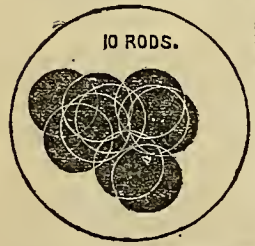

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THE AMERICAN

HORTICULTURAL ANNUAL

FOR 1870.

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THE AMERICAN

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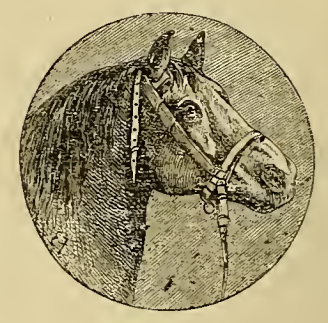
FOR 1870.



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NEWLY REVISED AND GREATLY ENLARGED

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RECOMMENDATION FROM HON. MARSHALL P. WILDER.

President of the American Pomological Society.

BOSTON, Oct. 4, 1869.

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Notices by the Press.

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Journal of Agriculture, (St Louis).

This will rank among the standard works of the country, and will be considered indispensable by every breeder of livestock.

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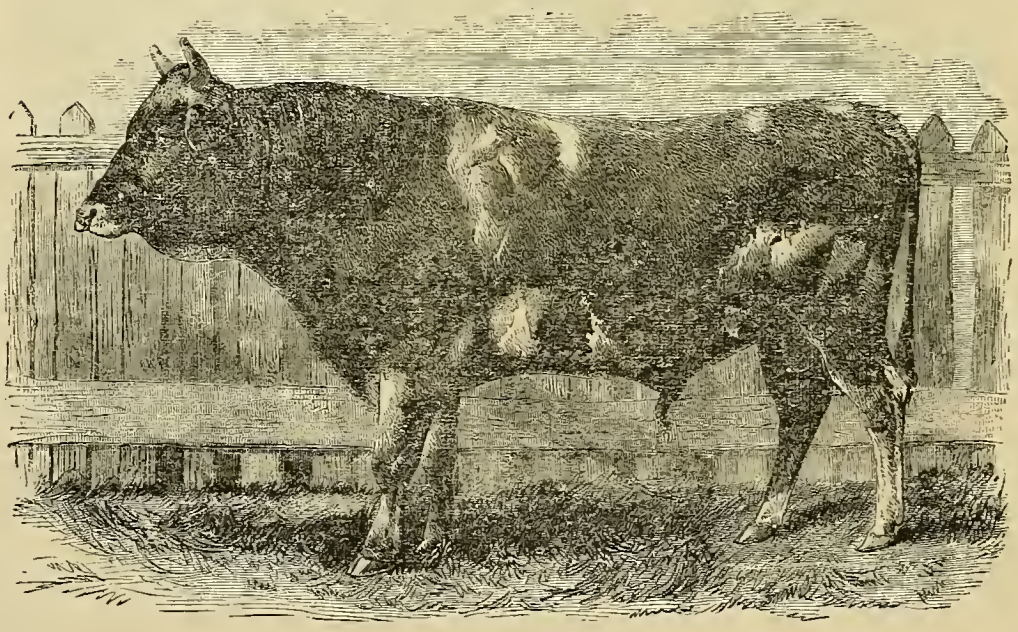

Notices by the Press.

The large experience of the author in improving the character of American herds adds to the weight of his observations, and has enabled him to produce a work which will at once make good its claims as a standard authority on the subject. An excellent feature of this volume is its orderly, methodical arrangement, condensing a great variety of information into a comparatively small compass, and enabling the reader to find the point on which he is seeking light, without wasting his time in turning over the leaves.

N. Y Tribune.

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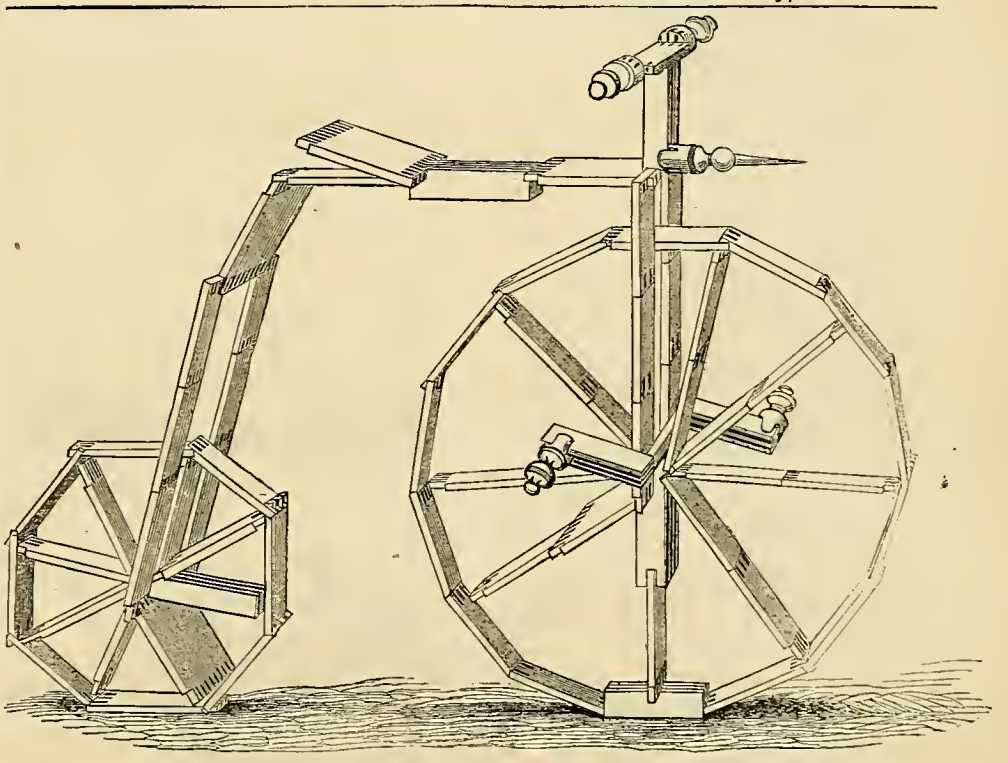

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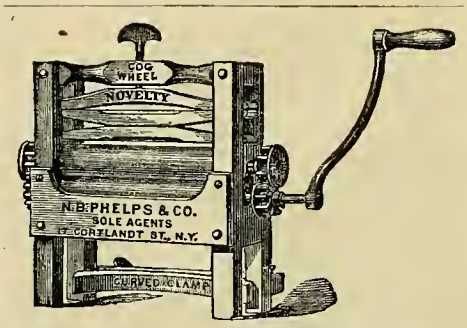

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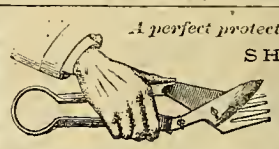

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CHAPTER I.

UNCLE ABNER.

Our rich Uncle, Abner Ashleigh, desired to go to Europe, and one of his nephews must go with him, for he was too feeble to travel alone, or to trust to the mercies of a hired servant, for, you must understand that our Uncle Abner was worth a half-million of dollars, and it was probable that one of our family would inherit it all at his death.

There were three nephews of us.

Tom Ashleigh, the eldest, who had finished his education, and commenced his ministerial labors.

Dick Ashleigh, the second son, who had but just graduated, and coveted the wealth of Uncle Abner more than all the others. Next in order came myself, Harry Ashleigh, who was still at his books, hoping to get learning enough to gain a comfortable living, for I had no hope of ever inheriting a dollar of Uncle Abner's money.

He had told me twenty times that he wouldn't leave me enough to buy a jack-knife with, because I was so careless of his feelings and his gout.

But the world went merry enough for me without Uncle Abner's money, and I knew that I could earn my own pocket money if I was but faithful to my books.

I was home on vacation when Uncle Abner announced his determination to go to Europe.

"You will never think of going alone, Uncle Abner!" exclaimed my only sister, who had recently married well, and consequently, thought less of Uncle Abner's money.

"Of course, I shan't go alone!" snarled the petulant gentleman, and sent us all out of the room while he waited for Tom, or more respectfully, the Reverend Thomas Ashleigh, pastor of the Wendall street church.

He came, and I went stealthily up stairs, and with my ear close to the register, overheard the following conversation:

"Good morning, my dear Uncle! How do you find yourself this morning? This cold weather coming on will affect your gouty limbs, I fear," said my brother.

"I'm well enough to go to Europe, and all I want of you is to know whether you can leave your business long enough to go with me. No parleying, but answer me. Yes or no," growled Uncle Abner.

"My dear Uncle, I would not listen to such a proposition from any other man in this world. But in view of your uniform kindness to me, and your liberality heretofore, I shall not hesitate one moment, but declare myself ready to forego all thoughts of self-interest, and accompany you wherever you may wish to go."

"Umph! well! You say you wouldn't do this for any other man living?"

"I would not, upon my honor, Uncle! Think of the excellent chance I have, and my liberal salary, all of which I must sacrifice. No, dear Uncle, I would not do this for another living man—"

"Then, by hokey, you shan't do it for me!" snarled my Uncle, leaning back in his chair, and shutting his eyelids closely.

"But, my dear Uncle—"

"Shut up your confounded noise, sir! Can't you see that I am going to sleep?" angrily exclaimed my Uncle.

"But, sir!" persisted Tom.

"Get out! Don't I know what you are all fishing for? If I hadn't half a million of dollars at interest, you'd every one of you see me go to Europe, or to the devil, alone. You know you would, you sneaking cur! You wouldn't one of you offer to go with me! Get out of my sight!"

The Reverend Tom knew full well that to remain would lessen his chances of ever getting a haul out of my Uncle's coffers, so he prudently withdrew.

Uncle Abner's bell rang furiously.

My sister answered the summons.

"Send Dick to me!" he roared.

"Uncle Abner has one of his tantrums to-day," muttered my sister, going for Dick, who at once repaired to the "lion's den."

"Dick, I'm going to Europe. Do you want to go with me?" was the question.

"If I could leave my profession, sir, I should be most happy to accompany you, but the journey, pecuniarily viewed, will subject me to considerable loss—"

"Get out! Just as though you did n't know that I should pay all expenses, and pay you well for your time besides."

"Certainly, my dear Uncle! Certainly! You have always been near and dear to me, and I am willing to make any sacrifice for your pleasure. I will go to Europe with you," replied my brother, Dick.

"Not by a jug-full, if I know myself! No, sir, you toady, if you go to Europe, I don't. Clear out! all that any of you want is my money! I ain't blind! I can see it."

Dick left the room in disgust, and my heart began to thump ominously. If there was one thing I desired more than another, it was to go to Europe, to travel in the land of history of romance, and of song.

Therefore, when Uncle Abner's bell rang again, and he thundered a request for me to be sent to him, I was ready.

"What now?" I asked, entering the room.

"Sit down there, you young scape-grace! I want to talk to you," he said, savagely.

"I don't care to sit down," I replied. "If you have anything to say to me, you'd better say it soon, or I shall be out of hearing."

"Harry, I'm going to Europe, and I've sent for you to ask you if you would like to go with me," he said, more mildly.

I burst into as loud a laugh as I could counterfeit, and after it had a little subsided, exclaimed:

"Well, if that ain't a good one! The idea of my going to Europe with you! Why, you cross old curmudgeon, I would not go to Europe and back with you for all you are worth."

"You wouldn't? I'm worth half a million, young man!" he cried.

"I know that," I answered, moving toward the door.

"Come back here, you young scamp! I'm going to Europe, and you've got to go with me, whether you want to or not," he cried.

"Now, Uncle Abner," I said, gravely, coming into the room, and throwing myself into his favorite chair, put my feet upon the table where he kept his papers and choice books.

"Uncle Abner Ashleigh, I want to go to Europe more than I ever wanted anything in all my life. But I wouldn't travel in your company for all the wealth of the Indies!"

"Why not?" he asked, in a voice quite humanized.

"Because, Uncle Abner," I continued, coolly, pushing a heavy book from the table with my feet, "you are so mortal ugly that I couldn't live to get back! I am morally certain that I should kill you, if you didn't kill me before we had gone a thousand miles from home. No, sir! I won't go to Europe with you."

And having delivered myself of this speech, I arose, and, picking up the book I had displaced, left the room.

After that there was silence in Uncle Abner's room until dinner-time.

Then I was sent for again.

"Harry, my boy, how would you like to have half a million of dollars?" he asked. He spoke pleasantly; but I could detect the tiger in his eyes.

"If I could have half a million of dollars, without degrading myself to get it, I should think it was pretty jolly. But I wouldn't stand your lip, from here to Europe and back again, for a *whole* million!" I answered.

"Come, now, boy, don't be stubborn! Say you'd go with me, and look out for my comfort if I'd promise to make you my heir by will. You would, wouldn't you?"

"No, sir-ee! I wouldn't do it!" I replied.

"Haven't you any respect for your old Uncle?" he asked, changing his tactics.

"No, sir!" I answered, bravely.

I saw that my journey to Europe was as good as made, if only I played my cards well.

The cross old fellow, finding one who would not bow to his half-million, was determined to conquer.

"Don't you love me any, Harry?" he whined.

"Love you, Uncle Abner? How can you expect me to love you, when you have only given me abuse all the days of my life? No, sir! I don't love you any more than I love that brass monkey, on the shelf beside you!"

"Oh, Harry! Ungrateful boy! Think of all the money I have spent on your education, and your clothing, and everything!"

"My good friend, you can't play that on me! All that you have ever done for me don't half pay for the trouble of having you forever snarling about the house. No, sir; it don't! And when you die, I intend to bring my bill in against the estate, at so much a day, damages."

"Damages! Against what?"

"Against my disposition, Uncle Abner. You've fretted, and growled, and snarled about this house, until you have changed me from one of the sweetest-tempered little cherubs that ever went without wings, to a saucy, insolent boy, who has no regard for anything sweet or sacred. And your estate will have to pay damages, sir!"

Uncle Abner looked first angry, then surprised, and he finally burst into a loud laugh, telling me to "clear out, and begin to get my things ready to go to Europe with him."

I went, protesting all the way that he had not money enough to hire me to accompany him across the ocean. The next day he called me to him, and unlike himself, promised to be very quiet and gentle, and not be rude or cross at all, if I would say that I would go with him to Europe. But I held firm until all my preparations were made, and the steamer in which he had planned to go would sail in two days.

My mother and sister begged to be taken along, but the crusty old fellow declared that he'd as soon have a thousand cats along with him as two women.

"No, my dear madam!" he said, in reply to her request to accompany him across the ocean; "I'd as soon have a parcel of cats, as a woman to travel with. You can't go."

And that settled my mother's journey to Europe, for that time.

Declaring to the last that I would not go with him, I bade my mother and brothers and sister a tender farewell, and went with Uncle Abner to the wharf. "I'll go on board and see you safely stowed away in your state-room, Uncle Abner, and I hope you'll have a pleasant journey. Hang it, old fellow! If you wasn't so ungodly in your ugliness I would go with you. I do want to go to Europe," I said, as we entered the large, airy state-room.

The tears actually stood in the old man's eyes.

"I'll leave you all my money if you'll go!" he replied.

"It isn't too late to send a message to your mother, and go now. Say you'll do it, my boy. Remember the half million."

"I don't want your money, Uncle Abner! With my education, when it is finished, I can earn all the money I shall ever need, and you are so confounded cross, you know."

We sat talking together for nearly an hour, when I suddenly started up, exclaiming:

"I must go ashore, if I don't want to be obliged to go to Europe, and I don't. Not with you," I added.

"Well, good-bye, my boy;" and the old fellow wrung my hand at parting.

As I expected, the steamer was well down the harbor.

Returning to the state-room, I found my Uncle in tears.

"What are you crying about? Because the steamer has left the wharf, and I must go to Europe anyhow?" I asked.

"No! We're not moving, Harry?" he cried.

"Yes, we are," I replied.

"Now, praise the Lord! But, Harry, my boy, I'll be as gentle as a lamb with you—"

"You'll have to, or I'll jump overboard!" was my sympathetic reply, as I tumbled into my berth, which looked very inviting.

You may think me perfectly heartless, from my manner of treating my Uncle, but he was one of that sort of people, who, getting an idea into their head, allow it to become the one thought of their lives.

Uncle Abner had entertained the idea that his relatives were all anxious to get his money; and with forever brooding over the thought, had become monomaniacal upon it.

Therefore, it only remained for me to convince him that I cared nothing for his money, to gain his affections, and probably through them his wealth.

He had no nearer kindred than my father's family; and if he left no will, we would share it equally.

There's no use in a person having a rich relative who is presumed to be not long for this world, to say that they give no thought to the money of that relative. The thing would be impossible.

Everybody thinks more or less of his *expectations;* and I had already resolved what disposition I would make of Uncle Abner's property, if ever it came into my hands. I would divide it equally between my two brothers, my sister, and myself. Mother had property enough in her own right.

Uncle Abner was as good as his word. He was as gentle as a woman all the way across the ocean; and our large, pleasant state-room became like a home to me, endeared by pleasant memories.

We reached the "other shore" in safety, and at once commenced the exploration of all the scenes of note.

Probably the most of my readers have seen all that I saw before we reached Paris. So I will not weary them by recapitulation.

CHAPTER II.

THE MASKED BALL.

There was to be a masked ball in the great hall connected with our hotel, and Uncle Abner insisted upon my going. I had never witnessed anything of the kind, and there was enchantment in the very thought of attending a masked ball in costume.

The evening came; and after having seen Uncle Abner nicely in bed, with his favorite foot-warmer, cologne bottle, wine and cigars, with book and bell at his disposal, I arrayed myself in the costume of a German prince, and repaired to the ball-room. There were many persons still earlier than myself; and for a half hour I amused myself with watching the movements of those present, admiring the different costumes, and seeing the new arrivals. Toward midnight I joined in the dance, my first partner being a graceful young girl, with the voice of an angel, in the costume of a German peasant girl.

As we conversed during the intervals of the dance, I observed that her voice was purely American. She must have noticed the same peculiarity, for she said, when we were resting after the dance:

"Your voice tells me that you are an American. I am American, too."

There was such a confiding, innocent ring to her sweet voice, that I was drawn to her in spite of myself.

"Have you been long in Paris?" I asked.

"More than a year. I am at school here; and that large, graceful woman, in the costume of a queen, is my teacher of German. She planned our coming here to-night. In fact, it was Gretchen who first proposed coming. My mamma is terribly strict, so Gretchen says, and she never allows me to go to any place like this. But Gretchen promised to take care of me, and she gained mamma's consent to my passing the night with her, at the lodgings. Then we came here; and here we are, having a splendid time. It is nice, isn't it?"

"Very nice, indeed," I answered, charmed by the frankness of my young countrywoman, and wishing that I could obtain a glimpse of her face, which I felt, instinctively, must be very beautiful, from the purity and sweetness of her voice, her graceful form, and slender hands and feet.

"Have you ever been in a place like this before?" she asked.

"Never!" I replied.

"Quite a coincidence! We are both Americans, and neither of us have ever been at a masked ball before. Perhaps we shall meet in our native land sometime. How shall we know each other there?"

"How shall we, unless you give me your name, and I give you mine?" I replied.

"My name is Geraldine—"

"Mademoiselle is talking too much," exclaimed a soft voice near us; and turning, we beheld the German teacher in the costume of a queen.

"Pardon me, Gretchen! I forgot what you told me, indeed I did," murmured the young girl, bowing me a fare-

well as she moved away with her teacher, who had not honored me with a glance.

An hour later I stood behind a marble pillar near the entrance, thinking whether to go to my rooms, or remain awhile longer at the ball. Two men came and stood near me without observing me. Their first words chained me to the spot. The voice of the first speaker was that of a native Frenchman; the other was purely English.

"Gretchen for me, and you may have the young American, my lord."

"Exactly. But how will you get them into our power?" asked the English voice.

"Gretchen is in the secret! We have met before. But the young American girl must be decoyed. Gretchen will attend to that. All we have to do is to go first to my private room. Gretchen will come in presently with the American. We will have a little supper ready, and you must give the little beauty drugged wine. Gretchen and I will then go our way, and you will have the field clear to enjoy your triumph. Ah, my lord, Paris is one grand city for intrigue in love affairs."

The men moved away, and I stood irresolute. The spirit of old '76 was stirring within me, and that would never allow an Englishman to triumph over an American, even were there nothing in my heart that would protect a weak, innocent girl from the snare of a villain.

I felt that the first thing to be done was to ascertain the locality of the room where Gretchen was to betray her charge into unscrupulous hands.

Fortune favored me, for coming slowly down the hall, I saw the slender, graceful form of Geraldine, accompanied by her teacher.

The two men paused opposite her, and one of them said "No. 72." Gretchen waved her fan, and passed on. I went to No. 72, and found the door unlocked.

On going in I saw a dainty supper laid for four, with wine and champagne.

Quickly hiding behind the rich, heavy window drapery, I was not a moment too soon, for closely following me came the Frenchman and the English lord.

They cast aside their masks, and I saw that both were young and handsome. They had been in the room but a moment when Gretchen entered with the young American girl.

"Throw aside your mask now, Geraldine," said the teacher, taking off her own mask, and turning the most beautiful of blonde faces towards me.

The handsome Frenchman arose, and bowing low before the fair Gretchen, lifted her hand to his lips, and drew her to a seat upon his knee.

"Remove your mask, Geraldine," said the young English lord, approaching the trembling girl, who stood in the centre of the room, with her hands clasped upon her heaving bosom.

"Gretchen!" she cried," take me home, I'm afraid of these men!"

The Frenchman laughed as he kissed the white, bare shoulders of Gretchen, and the Englishman took a step forward, to throw an arm about the waist of the frightened girl, who stood still, unable to move or cry out.

His hand was upon Geraldine's mask, and in a moment it was upon a chair near by, while the beautiful, innocent face of the child lay white and upturned against the breast of her persecuter.

"She has fainted," said Gretchen, coolly. "We will leave her to your tender care, my lord," added the Frenchman; and he and Gretchen left the room together, leaving poor little Geraldine in the arms of her captor, who bent his sensual lips to touch her own pure ones, just as I sprang from my place of concealment, and pressed the cold muzzle of a revolver to his temple, whispering:

"Release this child, or I will blow your brains out, on the instant!"

Like the coward he was, the man let go his clasp about Geraldine's waist, and she rested against my heart.

"What will you do next?" asked the Englisman.

"Blow your brains out, fellow, if you are not obedient," I replied.

"I usually go armed myself, but am unfortunately defenceless to-night, or you would not have found your game so easily won. It's rather small business, anyhow, to take a beauty right out of a fellow's arms, after he has so far won her," muttered the Englishman.

Geraldine was slowly reviving, and in a few moments, she whispered:

"Oh, kind sir, please take me home! Once within my mother's protection, I will never, never wish to go away from her again."

"Calm yourself, my poor girl," I said. "I will take you safely to your mother's arms, I pledge my honor as an American!"

"Are you the gentleman with whom I talked this evening?" she asked.

"I am. You will trust me?"

"I will. Let us go now, please," she replied, clinging to my arm.

I took her mask from her chair beside us, and fastened it with my own hands. Then we went out together, leaving the Englishman sitting at the table as unconcerned as though nothing had happened. As we passed down the ball-room, my companion whispered:

"Take me to the American Hotel, upon the opposite side of this block, if you please."

I promised to do so, and sent a man for a carriage, which was at the entrance in a few minutes.

The ride to her hotel was rather embarrassing for both. Geraldine tried to thank me for the service I had done her, but her voice choked with tears, and I was too apprehensive of another scene, to reply gracefully, although I managed to stammer something in reply.

"What shall I tell my mother?" asked Geraldine, as the carriage stopped before her hotel.

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Another work by the same author is now in press, entitled "How Crops Feed," in which the subject of the Food of the Plant is amplified in all its details, and the atmosphere and the soil are fully discussed in their manifold relations to the Plant.

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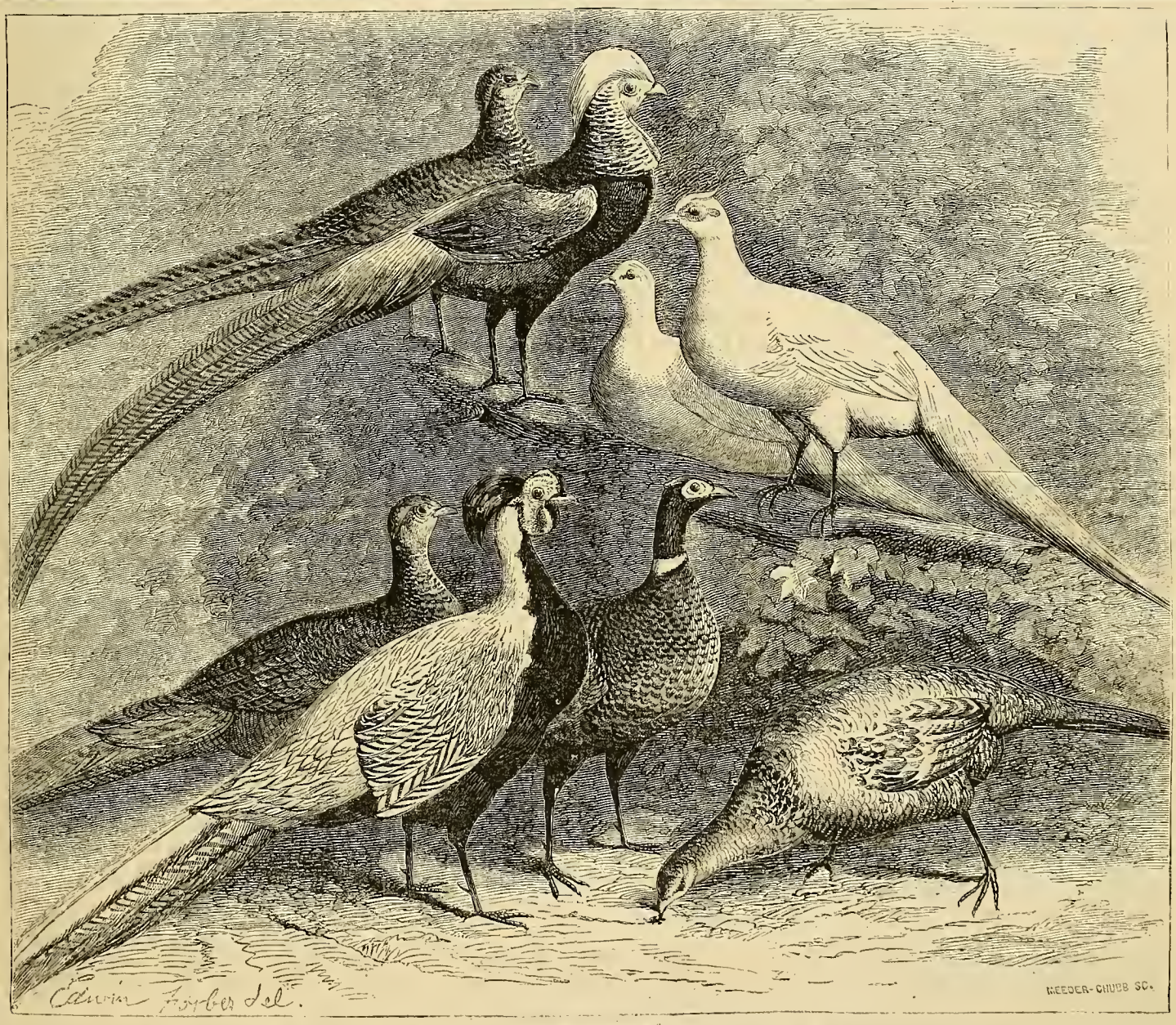

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GROUP OF ORNAMENTAL PHEASANTS.—FROM LIFE, BY EDWIN FORBES.—*Engraved for the American Agriculturist.*

We have often wondered that this strikingly beautiful class of poultry is not more frequently bred by our amateur poultry fanciers. The pheasants breed readily in confinement, and are reported quite hardy. The common pheasant of Europe is said to have been originally (hundreds of years ago) brought from Asia. It is a very beautiful bird, though not so brilliant, from contrasts of color, as the golden and silver species which come from China. The Common Pheasant is known in several variations, one of which, the Ring-necked Pheasant, is seen with his mate at the right of the engraving. The cock is a pugnacious fellow, armed with sharp spurs, and weighs about 3½ pounds. His plumage glows with all the colors of the rainbow. Above this pair is a pair of Albinos of the same species. The Silver Pheasant, seen in the foreground, with his hen, of more sober colors, behind him, is gay in his variagated plumage of black and white. This bird is a good deal larger than the common one; the markings are well shown in the engraving, and the head of the cock is adorned by remarkable crimson, velvety caruncules. The Golden Pheasant, seen above the last, is much smaller than the others. The general color of the plumage of the cock is crimson; the crest, which is erectile, is golden yellow, contrasting with the orange colored cape, barred with black. Other colors in the plumage are chestnut brown, black, blue, and green, with glossy iridescences. Pheasants do not sit well in confinement, but drop their eggs about, which are usually set under bantams or Silky fowls. The young are delicate, and require careful attention and a variety of food. No doubt some of the varieties of pheasants might be introduced, and if set at liberty in retired spots, below latitude 41°, become acclimated.

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Calendar for February.

Day of Month.	Day of Week.	Boston, N. England, N. York State, Michigan, Wisconsin, Iowa, and Oregon. Sun rises.	Sun sets.	Moon sets.	N. Y. City, Ct., Philadelphia, New Jersey, Penn., Ohio, Indiana, and Illinois. Sun rises.	Sun sets.	Moon sets.	Washington, Maryland, Virginia, Kentucky, Missouri, and California. Sun rises.	Sun sets.	Moon sets.
		H. M	H. M	H. M.	H. M	H. M	H. M.	H. M	H. M	H. M.
1	T	7 14	5 14	6 27	7 11	5 18	6 30	7 7	5 21	6 33
2	W	7 13	5 15	7 28	7 10	5 19	7 39	7 6	5 23	7 32
3	T	7 12	5 16	8 27	7 9	5 20	8 28	7 5	5 24	8 30
4	F	7 11	5 18	9 26	7 7	5 21	9 26	7 4	5 25	9 28
5	S	7 10	5 19	10 24	7 6	5 22	10 23	7 3	5 26	10 23
6	S	7 9	5 21	11 21	7 5	5 23	11 19	7 2	5 27	11 18
7	M	7 8	5 22	morn	7 4	5 25	morn	7 1	5 28	morn
8	T	7 6	5 23	0 19	7 3	5 26	0 16	7 0	5 29	0 15
9	W	7 5	5 24	1 16	7 2	5 27	1 13	6 59	5 30	1 10
10	T	7 4	5 25	2 17	7 1	5 28	2 13	6 58	5 32	2 9
11	F	7 2	5 26	3 15	7 0	5 30	3 11	6 57	5 33	3 6
12	S	7 1	5 28	4 13	6 58	5 31	4 8	6 55	5 34	4 3
13	S	7 0	5 29	5 8	6 57	5 32	5 3	6 54	5 35	4 58
14	M	6 59	5 30	5 59	6 56	5 34	5 54	6 53	5 36	5 50
15	T	6 57	5 32	rises	6 55	5 35	rises	6 52	5 38	rises
16	W	6 56	5 33	6 24	6 53	5 36	6 26	6 51	5 39	6 29
17	T	6 54	5 35	7 33	6 52	5 37	7 39	6 49	5 40	7 40
18	F	6 53	5 36	S 51	6 51	5 39	8 51	6 48	5 41	S 51
19	S	6 52	5 38	10 5	6 49	5 40	10 3	6 47	5 42	10 3
20	S	6 50	5 39	11 17	6 48	5 41	11 15	6 46	5 44	11 13
21	M	6 48	5 40	morn	6 46	5 43	morn	6 44	5 45	morn
22	T	6 47	5 42	0 27	6 45	5 44	0 24	6 43	5 46	0 20
23	W	6 45	5 43	1 35	6 44	5 45	1 31	6 42	5 47	1 27
24	T	6 44	5 45	2 40	6 42	5 46	2 35	6 40	5 48	2 30
25	F	6 42	5 46	3 39	6 41	5 48	3 34	6 38	5 49	3 29
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27	S	6 39	5 49	5 16	6 38	5 50	5 12	6 36	5 52	5 7
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AMERICAN AGRICULTURIST.

NEW YORK, FEBRUARY, 1870.

We approach the time, with the passage of this month, when farmers must have their plans made, and know pretty well just what they purpose, and how they will carry it out. The lengthening days make farmers impatient for field work. It is high time that good farm hands were engaged for the summer. The best make the earliest engagements. As there has been quite a dearth of employment for laboring men, both in town and country, we anticipate engagements at lower rates than ruled last year. Money is "tight," in commercial phrase, and farmers have not been so well paid for their products as in the past few years. This should not influence us to decrease our operations; to extend them with discretion, and to employ still more labor, would be better policy. The prosperity of the country depends directly upon large, good crops, of our staple productions. Labor well employed, and manure well applied, will surely pay in the long run. The price of produce is influenced greatly by the European markets, and, of course, by the harvests of the rest of the world. We are at peace, and the irregularities consequent upon a state of war have nearly passed away. Our population is rapidly increasing, land is growing in value, and the prosperity of our country and of the farming interest was never more certain.

Hints About Work.

Wintering Stock too often means feeding animals just enough to bring them through to spring, or to "grass," with life enough to recover in a few weeks from their run down, "spring-poor" condition. No class of stock can be thus treated without loss. They are liable to take diseases, they become the prey to all sorts of vermin, and if the treatment goes a little too far, the crows and dogs pick the bones. Any kind of stock may be wintered well on good upland hay and corn-stalks, or better, corn fodder, which is a good variation or mixture for beef cattle and horses. They eat bright wheat and oat straw, and salt or marsh hay with a relish occasionally. Most horses will keep fat as seals on hay alone, if not worked. They should be fed moderately, three times a day. Cows and young cattle cannot eat too much, and should have all they will eat of coarse fodder. They ought not to be made very fat, and will not become so without grain. Sheep will do well on straw, corn fodder, and hay, swine on clover hay, corn fodder, and a little bran or slops daily, if they have warm quarters.

Beef Stock.—As beeves increase in flesh, their feed should be improved in quality, and varied, so as to tempt the appetite, especially if they are to be marketed soon. If they are to be kept for grazing, they need not be fed highly, but kept gaining.

Cows.—Should any "come in" thus early, give them warm quarters and abundant feed, which may well consist of four or five quarts of bran or middlings, two quarts of oil-meal or corn-meal, and half a bushel of roots for each one, with all the hay she will eat. This will keep up the flow of milk until grass comes. Grain fed to cows with calf is of great service, and it is perfectly safe to let a cow get almost beef fat; if she is a good milker, all will come back in milk and cream.

Horses in steady use need only good feed and grooming, with care that their shoeing is suitable for the season. Those having little work should be exercised, that their legs do not become stiff and "stocky." If they do, hand rubbing is an excellent thing to redness them. They get exercise enough usually by having an hour's run daily.

Brood Mares should have regular exercise also, and their feed may be increased in quantity or quality as their time approaches. Be careful about their slipping upon the ice, and see that they have feed and water regularly, and salt, either always accessible, or given frequently—the former plan is best.

Sheep.—Separate the weakly from those that crowd them, so that each shall get its full share of feed. Feed roots if you have them to all, but especially to fattening sheep, and ewes near yeaning. Remove vermin and scab by carbolic soap.

Early Lambs should be yeaned in very warm quarters, carefully attended during the critical period of the first few days. Should they become chilled and set back, much of the profit is lost.

Breeding Sows require a variety of nourishing feed. Clover hay, milk, boiled potatoes, bran, etc. Do not expose to cold winds or to drifting snow.

Sick and Disabled Animals, of all sorts, should be separated from others of their kind, and placed where they can have extra care, better feed, warm, clean stalls, with plenty of bedding, and where they can be watched and groomed. Never "doctor" by guess work; if you do not know what is the matter, or what to do, do nothing but give good nursing, and trust to nature. If it is inconvenient to provide other accommodations, a sick horse may be placed in a loose box in the cow stables, and a sick cow may be placed among the horses.

Poultry.—It is time for all kinds of poultry to prepare for laying; this they do by accumulating flesh in the first instance, and by the time the hens, ducks, geese and turkeys are in good condition, they will, if good for anything, begin to lay. If we wait until they lay before we begin to feed them well, they will give us few eggs before they want to sit. The arrangements for a large clutch of eggs are made early, probably long before a single one is laid. Give fowls some meat or pounded bones, and oyster shells, and gravel if the ground is covered with snow. Ducks need similar food. Geese should have green feed—cabbage leaves, and turnip sprouts are good for them, and for all poultry. They will eat hay, which is best cut small, and pounded on a block after having been soaked.

Grain Fields, if bare, should be looked to, to see that the water furrows are free, and that the soil is not liable to be washed by spring rains. If the grain is much heaved by the frost, it should be rolled as soon as the frost is out and the ground is settled enough. If clover seeding is intended, the seed may be sowed before rolling. It will probably not start before settled warm weather. Top-dressings of bone-dust, ashes, fish guano, fine, rich compost, Peruvian guano, or good superphosphate, will do much towards resuscitating grain which the winter has used roughly, and may be put on poor spots.

The Wood Lot will still furnish work. Fire-wood cut during the winter should be hauled in and piled under cover of a roof, so that air shall circulate freely through it, if it is desired to have it in per-

fection. Fallen or decaying trees should be cut. Crooked saplings, or those which have given up the effort to push through to the light, should be mercilessly removed. Among the young growth, encourage only timber trees or those best for fuel.

Maple Sugar.—Make preparations betimes, and consult an article detailing the processes on p. 58.

Manure.—Good sledding may well be employed to haul out manure, especially upon plowed ground. Work over manure that is liable to heat, and lay it in compact piles, over which water may be pumped, to check and equalize fermentation.

Seeds, of all kinds, likely to be needed, both for the farm and garden, should be early provided, and tested in pots or boxes, to prevent disappointment.

Work in the Horticultural Departments.

Much is gained in taking advantage of occasional mild spells to advance the spring work. The early part of the winter, contrary to general expectation, afforded several such, and doubtless others will occur in which preparation for planting may be made, odds and ends cleared up, and several days gained which must otherwise have been taken from the busy season. We repeat that it is a great advantage to the purchaser and a convenience to the vender to order trees, seeds, and similar matters, well in advance of the time at which they will be planted and sown. Seedsmen now have their catalogues ready and their stock in store. Most of the hints given in January are timely now.

Orchard and Nursery.

Planting.—The time for setting trees will be governed by the locality. In the Southern States, planting will be done this month, but at the North nothing is gained by planting too early, even if the ground happens to be open for awhile. The cold, drying winds are very injurious to trees that have not yet recovered the use of their roots.

Varieties.—In planting for family use, the selection should comprise varieties from the earliest to the latest. In orchards, for marketing, there should be but few varieties, and those of popular market kinds, known to succeed in the neighborhood. In making a selection, local experience is the only safe guide. Do not buy from the extravagantly colored pictures shown by traveling agents. If unfamiliar with the sorts found to do best, make it a business to go about among those who grow fruit, and learn.

Young Trees, that are vigorous and healthy, are to be preferred to larger ones that have become checked in their growth by being crowded in nursery rows. Some planters prefer trees only one year old from the bud or graft. If trees are frozen in transportation, let them thaw very gradually.

Old Trees, that have become established, may be treated, during a damp, foggy time, to a wash of strong soft-soap, thinned with water enough to work, or a lye of potash. This destroys moss, loosens old scales, and leaves the bark smooth.

Injured Trees, such as have been broken by storms or otherwise, should have the ragged wound pared smooth. Those slightly injured by mice and rabbits will recover if earth be drawn up to cover the wound. If the bark is completely gone, the only way to save the tree is to connect the bark below and above the wound by cions, inserted in the bark so as to span over the injured part.

Grafting should be done only when the swelling of the buds shows that vegetation is starting. Cions may be cut and preserved in moss or sawdust.

Pruning is to be done before growth begins. In pruning neglected trees, the object should be to get an open and well-balanced head. Take care that a bad wound is not made by the falling of the limb when partly sawed off. Pare wounds smooth, and cover them with melted grafting wax or paint, which may be tinted, to be less conspicuous.

Insects.—Those which need particular attention at this time are the Tent-caterpillar and the Canker-worm. The first named is still to be attacked in the eggs, which will be found attached in bands to the twigs, near their ends. The Canker worm issues from the ground in spring, and often in warm days this month. The females are wingless, and can only ascend the trees to deposit their eggs by climbing. Some obstacle must be presented to their ascent. The simplest is a band of stout paper tied around the tree, to which tar is applied. This must be looked to every few days, and be renewed if the surface has become hard. There are a great many contrivances for surrounding trees with a gutter or barrier of oil or other liquid, impassable to insects, some of which are given in back volumes. The success of all these depends upon frequent inspection and care. See back volumes for details.

Manure may be spread upon the surface of the orchard. It should never be put in a heap around the trunks, where it does no good, but harm.

Fruit Garden.

Trees, and there should be only dwarf ones in the fruit garden proper, will need pruning, washing with soap or lye, protection against insects, etc., and such other care as has already been suggested for trees in the orchard.

Grape-Vines may be pruned when not frozen. It frequently happens that, in the pressure of fall work, the vines are left until now. If the coldest of the winter is over, go over those trimmed last fall, and remove the extra buds that were left as a precaution against the severity of the winter.

Blackberries and Raspberries should be set as early as the condition of the soil will allow. The underground shoots, which will form the canes of next season, start very early, and are likely to be injured if the setting is left until late.

Strawberries may be planted in those localities where the frost is out of the ground.

Kitchen Garden.

Manure is the main question, and it will be needed in large quantities, not only to apply to the soil, but for hot-beds. The heaps should be so large that the generated heat will not allow them to freeze. When the heaps become heated, which is shown by the issuing of steam, or may be ascertained by thrusting a stake into them, they should be re-built; water if the interior is dry.

Cold-Frames.—The plants will now bear full exposure during sunny days, but they must be covered in the afternoon, even if the nights are mild, for fear of a sudden change and snow storms.

Hot-beds should be started six weeks in advance of the time for planting in the open air; hence they are now needed only in the warmer States, where Tomatoes, Egg Plants, etc., may be sown. Preparations should be made. The common size of sash is 3×6 feet, glazed with 8×10 glass.

Straw Mats will also be needed to cover the sash, to protect plants from frost or too much sun. The mats should be 7 feet long, and 4½ feet wide, so that two will cover three sashes. We have, in former volumes, given directions for making them. One of the simplest is to stretch five strands of strong twine or "marlin," of the proper length, to form the mat, then lay on straw, with the butt ends towards the edges of the mats, and about an inch in thickness; then put five other strings over the straw, and directly above the first ones, and take a large needle and twine and sew through the straw, taking care that the loop of the stitch catches both the upper and lower strings. The sewing should be done at each pair of strings.

Brush, and Poles for peas and beans. Cut while there is leisure, and before the leaves start.

Potatoes.—A few for very early planting may be kept in a warm room to start the sprouts, and then be planted in a warm place in the garden. A few days may be gained, as they may with

Peas, by a little coaxing. Plant a row or two in a sheltered place, laying a board over the rows at night, and on very cold days. When the peas are up, raise the boards by means of bricks or something else that will keep them clear of the plants. Two boards, nailed together like an eaves-trough, are sometimes used for a cover at night. They may be placed, in the day, near the plants, to break off the wind and reflect the sun's heat.

Parsnips and Salsify.—Dig as soon as the ground is thawed, and before the plants start.

Rhubarb.—Roots may be forced by placing them in earth at the bottom of a barrel in a warm room, or, where there are cold-frames or green-houses, they may be forwarded easily.

Seeds.—Test their vitality as directed last month. Trust to none that are of doubtful identity.

Flower Garden and Lawn.

Plans for new improvements should be completed before the working season begins. We give, on page 64, some suggestions about laying out flower beds, and shall probably have something to say on the subject next month. Whether the place be large or small, a considerable extent of unbroken turf should be secured, unless one's taste for flowers is so strong as to require that all the available land be appropriated to them.

Shrubs should be taken into account in the plan. Many of them are beautiful in foliage all the season, and some of them produce exquisite flowers. Prune established ones if they have become overcrowded and out of shape. Let the trimming conform to the natural habit of the plant, and do not try to make one with naturally curving branches grow upright. Those which flower only on the new wood, like the Rose of Sharon, need to be cut back, to induce a strong new growth, while shrubs upon which the buds for next year's flowering, are ready formed, as the Lilac, need only to be thinned.

Ornamental Trees, if they need pruning, should be treated with the same care as fruit trees. Sometimes it will be necessary to remove lower limbs which are in the way, but, as a general thing, it is better to leave the tree to take its natural form.

Half Hardy Plants, which have been stored for winter in pits or in cellars, will need looking to, to guard against their being started into growth by the warmth of the sun. Give air, and keep as cool as possible, without severe freezing. Plants in cellars, if too dry, will need a little water.

Dahlias, Cannas, and other roots, stored for the winter, should be examined occasionally. They are more apt to suffer from dampness than dryness, and should be removed to a drier place if there are any signs of decay.

Wood-work, such as trellises, garden seats, rustic ornaments, etc., will need painting or oiling.

At the South, where the climate permits it, trees and shrubs may be planted, perennials lifted and divided, lawns made, and other spring work executed.

Green-house and Window Garden.

Air is to be given on mild days—a point much neglected by those who grow window plants.

Dust should be removed from the leaves of window plants by washing or showering.

Insects.—Those which most commonly infest house plants are treated of on page 63.

Bulbs should have the flower stalk cut away as soon as out of flower. If in pots or boxes, the leaves may be kept growing until they can be turned out in the open ground. Bulbs that have flowered in glasses are not worth saving.

Plants in Bloom will need shading during the middle of the day. Bring those about to flower near the glass.

Propagation of bedding and other plants for summer use may now be commenced. Verbenas, Geraniums, Heliotropes, and such plants, are often needed in large quantities, and by beginning early the stock may be multiplied extensively. The temperature of the air of the house should always be lower than that of the cutting bench.

Seeds of annuals, for summer blooming, may be sown in shallow boxes; the seedlings, when large enough to handle, may be pricked out into other boxes. Many of the herbaceous perennials, if started early in this way, will bloom the first year.

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HOW IT IS DONE.

As previously explained, the Publishers of the *American Agriculturist* employ no Agents, and pay no direct commissions on subscriptions. But they prepare a list of choice articles, very valuable for use, or for sale by those not needing them, which they offer to all desiring them, as *rewards* or *Premiums* to those who gather and forward clubs of subscribers. These Premiums are paid out of advertising receipts; *all* the money received from subscriptions, and much more, is expended upon the paper itself. The Premium Articles are purchased at the lowest wholesale cash prices, usually direct from the manufacturers, and by this means, and by favorable advertising arrangements, *large* premiums can be offered. No article is offered which is not believed to be of a superior character, and cheap at the prices named. The list is given in another column, and a full descriptive list is sent to all desiring it. Fully **ten thousand** people have obtained these premiums in the past, and a great number are now receiving them daily. While thousands have written expressing their great satisfaction at their reception, not a dozen persons have ever expressed the slightest disappointment. The Publishers aim to deal honestly, fairly, and liberally with all, and they have every reason to be gratified with the result.....Thousands of illustrations could be given had we room, but the following will suffice as recent examples:

FIVE LADIES obtained 12 subscribers each, received a Sewing Machine, and presented it to a Soldier's widow, who is thus placed in a condition to earn a living for herself and children. This is done in many places.

POSTMASTERS, and their CLERKS in large numbers, are making up many Clubs, and calling largely for almost every article in the whole premium list.

A SCHOOL BOY, (one of many similar cases) in five evenings, gathered 19 subscribers, and now owns the Great Dictionary, with its immense store of information.

TWO FARMERS united their efforts, and in three weeks (using only part of the evenings and stormy days) they secured 150 subscribers in their own and an adjoining neighborhood, and as a reward they own together a Buckeye Mowing Machine, with no cost except freight.

A SCHOOL TEACHER, during a few evenings, made up a Sewing Machine Premium Club, and sold the machine for $55, (equal to his net wages for two months).

MANY GENTLEMEN of various occupations have made up Clubs of 6 to 66 subscribers, and have thus been able to surprise their "better halves" with one or more of the premiums Nos. 40 to 55. (See Table.)

LADIES, IN GREAT NUMBERS, and many MEN, are canvassing for our Premiums *as a business.* They receive the articles and sell them, for they are all very salable, and thus secure larger salaries than they could obtain in any other way—ranging all the way from $30 to $400 a month. The Publishers have letters and figures to show these facts. Any person, of the right tact and enterprise, can do the same. Those who have not the tact can cultivate it, if they have the enterprise.

THE PASTOR OF A SMALL VILLAGE CHURCH, says: ".....I needed a Cyclopedia for my Library, but my small salary would never leave enough to buy it.....I started out Monday morning among my parishioners, and, stating my object to my people, they soon helped me to a list of 96 subscribers, and I am sure I could have got 125 names, if you had required it, for the Cyclopedia. I am grandly paid for my effort, which has really cost nothing, for in gathering the names I made nearly a hundred Parish calls that I ought to have made any way. I shall repay my people in information these books are furnishing me; the reading of your paper in ninety-six families will awaken thought and enterprise, and thus they will be doubly paid. Further, I know of at least $200 lost by the humbug swindlers last year, which your paper would have saved. So here will be another gain. Your premiums are a public benefit."

AN ACADEMY STUDENT, paying his own way, spent vacation in canvassing among his friends, and for the subscribers obtained he selected premiums he could sell; and, as the result, he *cleared* $5.27 for each day of vacation, over all traveling and other expenses.

EIGHT BOYS AND GIRLS obtained 10 subscribers each, and received for the Club a premium Melodeon for their Sunday School Room. Some people who at first thought they "didn't want the paper," subscribed on account of the object aimed at, but they will doubtless find the investment really a double paying one.

A CLERK IN A COUNTRY STORE, says: ".....My friend S—— got an 'American Watch' last year, and it was so good that I thought I would try for one this year. So I opened my list four weeks ago, and as opportunity occurred, without interfering with my regular duties, I have gathered and forwarded 55 subscriptions. I have found plenty of people willing to subscribe if I would take and forward the money. The enclosed list makes up 55 names—or enough for the Watch Premium, No. 56, and five names more towards a Sewing Machine for a widowed Aunt, which I shall get before spring, and I guess before this month closes....."

SEVERAL FARMERS' CLUBS have divided the collection of names among a few active members, five to a dozen each, and secured the valuable premiums Nos. 100 to 111—so that they have the books for general use, besides the paper for the individual subscribers.

IN THE SAME WAY the valuable Live-Stock offered in the premiums are being secured for neighborhood use. One of these breeding animals, introduced in a neighborhood, will soon bring increased value to the stock, to the amount of thousands of dollars.

BUT space fails us to note a hundredth part of what is being done all over the country, and easily done, too. The paper itself *shall* be so valuable as to repay all subscribers. The premiums are all so much extra gain, or pay, to those who simply take the trouble to explain its character and collect and forward names of subscribers.

THIS MONTH

IS A CAPITAL TIME to fill Clubs under way, and start and complete new ones. The supply of Premiums is abundant (except in animals) and almost any one who has enterprise and courage can gather a list of subscribers large enough to get some of the premiums. There is hardly a Post Office in the whole country where there are not still subscribers enough left to form quite a large premium Club. YOU READER, may secure the premiums if you will. **TRY IT.**

SEE "Special Notes" on next Page.

[In the following table is given the price of each article, and the number of subscribers required to get it free, at $1.50 a year, or at the lowest club rate of $1 a year. For full descriptions of the articles send for our *Special Sheet.*]

Table of Premiums and Terms, For Volume 29—(1870).

Open to all—No Competition.

No.	Names of Premium Articles.	Price of Premiums.	Number of Subscribers required at $1.50	at $1.
1	*Shorthorn Bull*	$500 00	425	1250
2	*Shorthorn Bull*	$800 00	500	1500
3	*Shorthorn Bull*	$700 00	580	1700
4	*Ayrshire Bull*	$100 00	120	350
5	*Ayrshire Bull*	$150 00	165	500
6	*Ayrshire Bull*	$200 00	210	650
7	*Alderney Bull*	$200 00	210	650
8	*Alderney Bull*	$300 00	300	900
9	*Alderney Bull*	$400 00	365	1050
10	*Devon Bull*	$100 00	120	350
11	*Devon Bull*	$150 00	165	500
12	*Devon Bull*	$200 00	210	650
13	*Cotswold Ram*	$100 00	120	350
14	*Cotswold Ram*	$200 00	210	650
15	*Cotswold Ewe*	$100 00	120	350
16	*Cotswold Ewe*	$150 00	165	500
17	*Southdown Ram*	$100 00	120	350
18	*Southdown Ram*	$150 00	165	500
19	*Southdown Ewe*	$75 00	100	285
20	*Southdown Ewe*	$100 00	120	350
21	*Chester White Pig*	$30 00	46	150
22	*Essex Pig*	$50 00	66	225
23	*La Fleche Fowls, one Pair*	$10 00	50	150
24	*Houdan Fowls, one Pair*	$10 00	50	150
25	*Crevc Coeur Fowls, one Pair*	$10 00	50	150
26	*Black Spanish Fowls, one Pair*	$20 00	80	97
27	*Brahmas, Light, one Pair*	$15 00	22	75
28	*Gold Laced Sebright Bantams, one Pair*	$15 00	22	75
29	*Bresee's King of the Earlies, (2 lb. parc.)*	$2 00	6	22
30	*Norway Oats, (1 peck, Ramsdell & Co.)*	$2 75	7	27
31	*Garden Seeds for a Family (40 kinds)*	$5 00	13	37
32	*Flower Seeds for a Family (100 kinds).*	$5 00	13	37
33	*Garden Seeds & Flower Bulbs (Selection)*	$2 00	5	22
34	*Nursery Stock (any kinds desired)*	$20 00	30	97
35	*Set of Field Croquet*	$8 00	16	52
36	*Sewing Machine (Grover & Baker)*	$55 00	60	240
37	*Sewing Machine (Florence)*	$63 00	70	275
38	*Sewing Machine (Wilcox & Gibbs)*	$55 00	60	210
39	*Lamb Knitting Machine*	$60 00	67	270
40	*Washing Machine (Doty's)*	$14 00	21	70
41	*Clothes Wringer (Best—Universal)*	$10 00	18	58
42	*Tea Set (Hart's best Silver Plated)*	$50 00	66	225
43	*Caster and Fruit Basket (do. do.)*	$30 00	44	140
44	*Cake Basket (do. do.)*	$12 00	19	65
45	*Revolving Butter Cooler (do. do.)*	$8 00	16	52
46	*Ice or Water Pitcher (do. do.)*	$18 00	27	90
47	*One Dozen Tea-spoons (do. do.)*	$6 00	15	45
48	*One Dozen Table-spoons (do. do.)*	$12 00	19	65
49	*One Dozen Table Forks (do. do.)*	$12 00	19	65
50	*Knives and Forks (Patterson Bros.)*	$14 00	21	70
51	*Knives and Forks (do. do.)*	$18 50	27	90
52	*Knives and Forks (do. do.)*	$22 00	33	110
53	*Knives and Forks (do. do.)*	$25 50	39	124
54	*Carver and Fork (do. do.)*	$3 00	13	37
55	*Fluted Steel (do. do.)*	$2 50	6	25
56	*Pocket Knife (J. P. Swain)*	$1 50	4	
57	*Pocket Knife (do. do.)*	$3 00	5	22
58	*Pocket Knife (do. do.)*	$2 50	6	25
59	*Ladies' Pocket Knife (do. do.)*	$2 00	5	22
60	*Melodeon, 4-octave (G. A. Prince & Co.'s)*	$67 00	78	295
61	*Melodeon, 5-octave (do. do.)*	$112 00	138	500
62	*Piano, Splendid 7-oct. (Steinway & Sons)*	$650 00	540	1600
63	*Colibri Piano (Mathusheck P. F. Co.)*	$450 00	380	1150
64	*Silver Watch (American Watch Co.)*	$40 00	50	150
65	*Ladies' Fine Gold Watch (Am. Watch Co.)*	$100 00	110	350
66	*Breech-loading Pocket Rifle*	$16 00	24	80
67	*Double Bbl. Gun, (Cooper, Harris & H.)*	$30 00	46	150
68	*Repeating Shot Gun (Roper Sp A. Co.)*	$75 00	92	312
69	*Tool Chest (Patterson Bros.)*	$44 50	60	190
70	*Case of Mathematical Instruments*	$9 00	18	55
71	*Case of Mathematical Instruments*	$15 00	22	75
72	*Gold Pen, Sil. Case, E. (Warren & Spadone)*	$1 50	11	35
73	*Gold Pen and Silver Case, F. (do. do.)*	$3 50	14	42
74	*Ladies' Gold Pen and Rubber Case (do.)*	$6 00	15	45
75	*Charles Pratt's Astral Oil (1 can, 5 Gal.)*	$1 00	9	32
76	*Barometer (Woodruff's Mercurial)*	$10 00	18	58
77	*Barometer (Woodruff's Mercurial)*	$15 00	22	75
78	*Buckeye Mowing Machine, No. 2.*	$125 00	150	450
79	*Patent Cylinder Plow, (R. H. Allen & Co.)*	$18 00	27	90
80	*Collins & Co.'s Cast Cast-Steel Plow*	$25 60	33	120
81	*Hand Cultivator and Weeder (Comstock)*	$9 00	17	54
82	*Pump and Sprinkler (Page's)*	$5 00	13	37
83	*Family Scales (Fairbanks' & Co.)*	$14 00	21	70
84	*Building Blocks (Crandall)*	$2 00	6	20
85	*Pocket Lanterns, One Dozen*	$9 00	17	54
86	*New American Cyclopedia (Appleton's)*	$30 00	96	325
87	*Worcester's Great Illustrated Dictionary*	$10 00	18	58
88	*Any Back Volume Agriculturist* (Unbound. Post-paid.)	$1 75		20
89	*Any Two Back Volumes do.* (Unbound. Post-paid.)	$3 50		29
90	*Any Three do. do. do.* (Unbound. Post-paid.)	$5 25	13	38
91	*Any Four do. do. do.* (Unbound. Post-paid.)	$7 00	15	47
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93	*Thirteen Vols. XVI. to XXVIII.* (Unbound. Post-paid.)	$22 75	33	108
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Read and carefully Note the following Items: (*a*) All subscribers sent by one person count, though coming from a dozen different Post-offices. But....(*b*) State with each name or list of names sent, that it is for a premium....(*c*) *Send the names as fast as obtained, that the subscribers may begin to receive the paper at once.* You can have any time, from one to four months, to fill up your list....(*d*) Send the exact money with each list of names, so that there may be no confusion of money accounts....(*e*) Old and new subscribers all count in premium clubs, but a portion, at least, should be new names; it is partly to get these that we offer premiums to canvassers. N.B.—The extra copy to clubs of ten or twenty is not given where premium articles are called for....(*f*) Specimen Numbers, Cards, and Show-bills, will be snpplied free as needed by canvassers, but they shonld be nsed carefully and economically, as they are very costly....(*g*) Remit money in Checks on New York Banks or Bankers, payable to order of Orange Judd & Co., or send Post-office Money Orders. If neither of these is obtainable, Register Money Letters, affixing stamps both for the postage and registry; put in the money and seal the letter in the presence of the Postmaster, and take his receipt for it. Money sent in any of the above ways is at our risk.

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Commercial Matters—Market Prices.

The following condensed, comprehensive tables, carefully prepared specially for the *American Agriculturist*, show at a glance the transactions for the month ending Jan. 14, 1870, and for the corresponding month last year; also for the year ending Dec. 31.

1. TRANSACTIONS AT THE NEW YORK MARKETS.

Receipts.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
24 days *this* m'th.	247,500	185,000	141,000	——	178,000	237,000
24 days *last* m'th.	519,000	3,173,000	729,000	56,500	1,558,000	2,147,000
Sales.						
24 days *this* m'th.	214,000	1,756,000	995,000	32,000	133,000	768,000
24 days *last* m'th.	336,000	3,018,000	1,609,000	47,000	763,000	1,656,500

2. *Comparison with same period at this time last year.*

Receipts.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
24 days 1870	247,500	185,000	141,000	——	178,000	237,000
20 days 1869	179,000	324,000	373,500	3,900	27,000	36,000
Sales.						
24 days 1870	214,000	1,756,000	995,000	32,000	133,000	768,000
20 days 1869	241,000	1,052,500	1,497,000	163,000	185,000	910,000

3. *Exports from New York,* Jan. 1 *to* Dec. 31:

	Flour.	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
1869	1,582,211	18,240,586	1,637,586	142,542	——	49,393
1868	1,020,522	5,775,109	6,002,825	153,093	——	94,340

4. *Exports from New York, Jan.* 1 *to Jan.* 14:

	Flour,	*Wheat,*	*Corn,*	*Rye,*	*Barley,*	*Oats.*
1870	61,497	419,228	16,646	——	——	880
1869	36,914	131,992	214,250	——	——	7,300
1868	29,860	59,670	300,987	——	——	1,074

5. *Stock of grain in store at New York:*

1869.	*Wheat,* bush.	*Corn,* bush.	*Rye,* bush.	*Barley,* bush.	*Oats,* bush.	*Malt.* bush.
Jan. 12	4,423,028	591,903	38,289	34,900	1,310,935	85,405
Dec. 11	3,810,562	833,909	59,043	285,906	1,386,594	77,097
Nov. 10	1,616,030	693,085	31,709	31,584	281,581	66,782
Oct. 11	978,272	445,068	34,167	5,948	120,950	67,094
Sept. 6	745,121	127,736	56,081	——	183,920	134,870
Aug. 9	634,262	253,155	75,797	361	50,219	105,458
July 10	531,657	328,613	71,418	2,966	259,985	97,177
June 7	637,877	385,241	107,546	333	555,993	109,746
May 11	1,056,048	394,156	107,502	17,684	613,166	77,677
Apr. 10	1,684,633	1,080,769	165,008	48,281	1,178,740	66,661
March 12	1,990,416	1,301,167	211,880	81,616	2,000,457	50,095
Feb. 10	2,708,609	1,407,646	225,182	91,384	2,390,529	58,034
Jan. 13	3,524,172	1,509,233	263,260	54,740	2,864,351	236,001
1868.						
Dec. 14	3,475,544	2,005,819	287 101	342,921	3,044,594	99,526

6. *Receipts of Breadstuffs in New York in each of the last seven years:*

	Flour.	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
1869	3,535,716	23,813,652	11,666,784	357,803	3,007,958	8,747,322
1868	2,860,726	12,988,147	19,053,615	773,351	2,853,043	10,221,590
1867	2,602,892	9,640,131	14,979,277	765,376	2,669,734	8,080,807
1866	2,720,835	5,729,912	22,189,532	1,314,943	5,695,485	8,811,064
1865	3,628,526	8,768,929	15,935,277	890,679	3,239,054	9,851,955
1864	3,967,717	13,453,136	7,164,895	491,915	2,544,891	12,952,238
1863	4,574,059	19,937,856	14,234,599	439,567	2,143,485	11,076,035

CURRENT WHOLESALE PRICES.

	Dec. 14.			Jan. 14.		
PRICE OF GOLD	122¼			121¾		
FLOUR—Super to Extra State	$4 40	@	$6 15	$4 50	@	$6 00
Super to Extra Southern	5 60	@	10 00	5 40	@	10 00
Extra Western	5 00	@	9 50	5 00	@	9 50
Extra Genesee	6 25	@	7 50	6 10	@	7 50
Superfine Western	4 40	@	4 90	4 50	@	4 85
RYE FLOUR	4 50	@	5 85	4 25	@	5 35
CORN MEAL	4 50	@	5 15	4 50	@	5 10
WHEAT—All kinds of White	1 40	@	1 65	1 35	@	1 60
All kinds of Red and Amber	1 05	@	1 35	1 00	@	1 28
CORN—Yellow	92	@	1 14	92	@	1 10
Mixed	1 06	@	1 12½	82	@	1 08
OATS—Western	63	@	63½	57	@	60
State	62½	@	64½	60	@	63
RYE	1 02	@	1 15	1 00	@	1 12
BARLEY	1 05	@	1 30	1 00	@	1 25
HAY—Bale ₩ 100 lb	75	@	1 15	80	@	1 20
STRAW, ₩ 100 lb	75	@	1 10	70	@	1 10
COTTON—Middlings, ₩ lb	25¼	@	26¼	25	@	26
HOPS—Crop of 1869, ₩ lb	15	@	28	15	@	28
FEATHERS—Live Geese, ₩ lb	85	@	95	85	@	95
SEED—Clover, ₩ lb	12½	@	13¾	13	@	14
Timothy, ₩ bushel	3 75	@	4 00	4 00	@	4 25
Flax, ₩ bushel	2 35	@	2 40	2 20	@	2 30
SUGAR—Brown, ₩ lb	10¼	@	12¾	9¾	@	12¼
MOLASSES, Cuba, ₩ gal	30	@	48	28	@	45
COFFEE—Rio, (Gold, in bond)	8¼	@	12¾	8¾	@	12¾
TOBACCO, Kentucky, &c., ₩ lb	9	@	17	9	@	17
Seed Leaf, ₩ lb	12	@	75	12	@	75
WOOL—Domestic Fleece, ₩ lb	44	@	60	42	@	60
Domestic, pulled, ₩ lb	32	@	47	30	@	47
California, unwashed,	22	@	33	20	@	33
TALLOW, ₩ lb	10	@	10¾	9¾	@	10¼
OIL-CAKE—₩ ton	45 00	@	48 00	41 50	@	47 50
PORK—Mess, ₩ barrel	32 00	@	33 25	27 25	@	28 00
Prime, ₩ barrel	23 75	@	27 00	—	@	—
BEEF—Plain mess	8 00	@	13 00	8 00	@	14 00
LARD, in tres. & barrels, ₩ lb	18	@	20	15¾	@	17¾
BUTTER—Western, ₩ lb	30	@	35	28	@	35
State, ₩ lb	33	@	46	32	@	45
CHEESE	10	@	17½	10	@	18
BEANS—₩ bushel	2 10	@	3 40	2 00	@	3 25
PEAS—Canada, in bond, ₩ bu	1 05	@	1 10	1 00	@	1 10
EGGS—Fresh, ₩ dozen	41	@	45	40	@	43
POULTRY—Fowls & Chickens	12	@	17	15	@	22
Turkeys, ₩ lb	11	@	20	18	@	24
Geese, ₩ pair	1 75	@	3 00	1 75	@	3 50
POTATOES, New—₩ bbl	1 00	@	2 25	1 25	@	2 00
APPLES—₩ barrel	2 50	@	4 50	3 00	@	4 75
SWEET POTATOES, ₩ bbl	3 00	@	5 00	—	@	—
TURNIPS—₩ bbl	1 25	@	1 75	1 50	@	1 75
CABBAGES—₩ 100	4 50	@	6 50	—	@	—
ONIONS—₩ bbl	1 50	@	6 50	4 00	@	7 75
CRANBERRIES—₩ bbl	—	@	—	10 00	@	12 00
BROOM-CORN—₩ lb	12	@	16	12	@	19¼

Gold has been unsettled and lower, having fallen to 119¼, but it subsequently rallied to 123¼, and closed at 121¾....Breadstuffs have been offered freely, and have been depressed in price, on a moderate trade. At the close, holders of Flour, Wheat, Oats, and Barley, manifested unusual eagerness to realize, in view of the liberal supplies available, and prices closed in favor of purchasers....Provisions have been in better supply, and hog products have been much cheaper. The demand has been somewhat brisker, at the reduced figures....Cotton has been less active, and irregular....Wool has been slow of sale, and weak in price....There has been much less movement in Hay, Hops, Seeds, and Tobacco, which have been held with comparative firmness....We give monthly and annual statistics of the breadstuff trade of this port, carefully made up, from our own records.

New York Live-Stock Markets.—

WEEK ENDING.	*Beeves.*	*Cows.*	*Calves.*	*Sheep.*	*Swine.*	*Tot'l.*
Dec.....20th	5,821	126	640	27,925	12,763	47,275
do. 28th	5,569	124	483	20,882	11,610	38,868
Jan.....4th	4,788	93	370	20,100	8,725	34,076
do. 11th	7,078	128	582	37,487	10,552	55,827
Total in 4 Weeks	23,256	471	2,075	106,394	43,650	176,046
do. *for prev.* 5 *Weeks*	29,588	564	5,077	169,145	81,708	286,092

	Beeves.	*Cows.*	*Calves.*	*Sheep.*	*Swine.*
Average per Week	5,814	118	519	26,598	10,912
do. do. *last Month*	5,918	113	1,015	33,829	16,341
do. do. *prev's Month*	7,990	115	2,020	43,054	20,711
Average per Week, 1869	6,275	92	1,752	28,836	15,348
do. do. do. 1868	5,733	105	1,588	27,182	18,809
do. do. do. 1867	5,544	64	1,320	22,134	20,605
do. do. do. 1866	5,748	94	1,200	20,000	18,000
do. do. do. 1865	5,255	118	1,500	16,094	11,023
Total in 1869	326,280	4,827	91,083	1,499,509	798,199
Total in 1868	298,138	5,466	82,571	1,413,479	973,061
Total in 1867	293,852	3,369	69,911	1,174,154	1,102,643
Total in 1866	298,889	4,885	62,420	1,040,000	672,000
Total in 1865	270,274	6,161	77,991	836,733	573,190
Total in 1864	267,609	7,603	75,621	782,462	660,277

In summing up the yearly supply of stock coming to the New York market for the year ending Dec. 31st, 1869, we find a large increase in some departments over the receipts given for former years, while in others the supply has not quite equaled that of last year. In the number of beeves there is an increase of 28,152 over the total for 1868, making the weekly average 6,275, or 542 more than the weekly average for 1868. The largest increase is among sheep, where the sum total exceeds that of last year by over 86,000. These figures are a pleasing feature to all interested in the growth of New York City. The markets have been much enlarged, improved, and they are undoubtedly at present second to none in comfort and regularity, care and attention given to the stock, or in the general courtesy to both buyer and seller....

Beef Cattle.—The weather, since our last report, has not been favorable for the beef trade. There have been several rains, followed by close, unseasonably warm days, which depressed the price somewhat. We quote some high figures, but they are only for fancy "Holiday Beef;" the prices of fair to medium grades change but little. The market has not been active since the new year began, but the yards are pretty well cleaned out each day. Butchers will not look at any animal that is not fat, and the price paid for such, over poor ones, is quite marked. Poultry has been abundant and cheap this year, and much of the high priced holiday beef, after hanging on the hooks for a few days, was finally sold at a loss to the butcher. There were many fine bullocks for sale, as is always the case in New York at Christmas time, but there is no space to give them special mention. The display (and the markets are a real show in the holidays) was fully equal to that of former years. We have seen heavier cattle in market, but a drove of fifty head, warranted to run 64 lbs. to the cwt., is pleasant to look at, and such were in market, and sold as high as 22c. per pound. The following is the list of prices, average price, and figures at which the largest lots were sold:

Dec. 20, ranged 11 @22c.	Av. 15c.	Large sales 14 @ 16¼	
do. 27th do. 11½@18c.	do. 14¾c.	do. do. 14 @ 15½	
Jan. 4th do. 10 @18½c.	do. 15c.	do. do. 13 @ 16½	
do. 11th do. 10 @17½c.	do. 14½c.	do. do. 13 @ 16	

By comparing the averages of this month with those for last month, it will be seen that the advance in price is really very little. We place it at about ¼c.@½c. per pound for fair beef. Of course the high price paid for very extra steers is not taken into the calculation....

Milch Cows have been more plentiful, and the market steady. There being a good demand, prices keep about the same. Fresh cows sell quickly for from $80@$100, but they must be good, and not half milked cows, with borrowed calves. A few, very fine, have sold for a few dollars over $100. Medium cows may be bought for from $70@$80, and sell slow at lower prices....

Calves.—The supply is small in this department, and sales rather slow. Butchers prefer in good weather to buy "Hog-dressed," which come in quite freely this season. Live calves sell, if fat, from 12c.@13c. With poor ones, 10c., and lower, per pound. "Hog-dressed," best quality, are worth 14c.@18c. Medium to poor, 8c.@10c. per pound. **Sheep** are in fair demand, and prices a little better. The quality also has improved, and buyers seem a little more ready to take them. Sheep that average over 100 lbs. bring from 7½c.@8c.; those of less weight from 4½c@5½c. and 6c. per pound. Fat sheep always sell quickest and best, and we urge upon farmers to send only such to market.. **Swine.**—The advance noticed in our last report has been more than lost this month. The supply has not been large, but the great number of "Western-dressed" offered,

brought down the price. Fat hogs are now selling for from 10c.@10½c. per lb. City-dressed bring 13c., or a fraction more, and western-dressed 12c.@12½c. per lb.

The Chicago Live-stock Reporter gives the following packing returns of Hogs packed at the various points the present season, compared with the number last season:

	Present season.	Last season.		Present season.	Last season.
Chicago. ...	308,405	597,945	Keokuk.....	35,000	42,500
Cincinnati..	253,000	356,555	Quincy..	22,000	29,111
St. Louis...	145,000	224,341	Pekin, Ill.....	2,200	5,310
Louisville..	165,000	107,209	Burlingt'n, Ia.	7,500	12,300
Milwaukee.	75,081	129,091	Muscatine....	3,000	5,100
Peoria.....	3,700	32,587	Springf'd, Ill.	10,000	12,000
Lafayette...	16,001	33,083			
Total.....				1,045,887	1,647,144

At the points indicated above, there appears to have been 601,257 hogs packed to the present time less than the entire number last season. The deficiency will scarcely be made good at the close of the present season.

containing a great variety of Items, including many good Hints and Suggestions which we throw into smaller type and condensed form, for want of space elsewhere.

Postage 12 Cents a Year in Advance.—The postage on the *American Agriculturist* anywhere in the United States and Territories, *paid in advance*, is 3 cents a quarter, 12 cents a year. If not paid in advance, twice these rates may be charged.

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Clubs can at any time be increased by remitting for each addition the price paid by the original members, if the subscriptions all date at the same starting point. The back numbers will, of course, be sent to added names.

Bound Copies of Volume XXVIII (1869) are now ready. Price, $2, at our office; or $2.50 each, if sent by mail. Any of the previous twelve volumes (16 to 28) will be forwarded at the same price. Sets of numbers sent to our office will be neatly bound in our regular style at 75 cents per vol., (50 cents extra, if returned by mail.) Missing numbers supplied at 12 cents each.

LARGE PAY for LITTLE WORK, is really offered in the Publisher's Premium Table, (page 44), and there is, in all the year, no better time than during February, to gather new and old subscribers, and obtain these premiums. There is no Post-office of a population so small, that there are not enough persons to make up a smaller or larger premium club. These clubs can, if necessary, be gathered from several neighborhoods, and from different Post-offices, if all are forwarded by the same person. In some localities, half a dozen premium clubs, more or less, can be gathered from the same Post-office. A large premium can be obtained by little outlay of time. It has been done thousands of times, and as human wants are about the same everywhere, what has been done in one case, can be done in another. Reader, YOU can get a premium, if you wish.

Good Advertisements, by a large number of dealers, will be found in the proper pages, and they furnish useful information. Looking through these will often suggest new ideas and profitable investments. Those writing for circulars, or sending orders to our advertisers, will confer a double favor by stating in their letters, *where* they saw the advertisement responded to.

Letters and Letters.—Each issue bears witness that we devote several pages of space, and a great amount of time, to answering the questions of our correspondents. We would say to our new subscribers, and remind our old ones, that this is one of the most time-consuming portions of our editorial duties, and inform them that they can save us much time, and insure for themselves a more prompt attention, if they will state their case in brief, and stop when they are done. A letter like this,—"Dear Sir.—Being a great lover of that noble animal, the horse, I presume that you take an interest in him also. This is the first question that I have ever asked you, and I hope your well-known good nature," etc., etc., for two mortal pages, at the very end of which comes the question. A letter like this is laid aside until we have time to study it, and find out what the writer wants. If he had written "Dear Sir.—My horse finds it difficult to open his left eye in the morning. The lids appear to be glued together. What is the remedy?"—his case would have been comprehended at a glance. We have many letters which we can not answer, because life is too short. Twelve to twenty or more questions on a subject would require a treatise, and a book upon the subject should be procured. Where letters are received by the thousand, it will be seen that directness and brevity are desirable. Persons writing should always give their name, though they can use any signature they choose for matter intended for publication. Do not inclose, as is frequently done, 25 or 50 cents "for information,"—we have none to sell upon such terms. Send $5,000, or nothing but a postage stamp, which, by the way, too many forget when they ask an answer by mail.

Our Annuals for 1870, viz., the "Agricultural" and "Horticultural," are beautiful and valuable volumes, which should go into every household. They cost but 50c. each, in fancy paper covers, or 75 in cloth.

Six-and-a-Half Subscribers a Minute!—With the hard times among our western grain growing readers, we hardly expected the circulation of the *American Agriculturist* would hold its own this year. We are agreeably disappointed in the result. Instead of losing old readers, they are renewing generally, and bringing along many of their friends and neighbors. Our largest receipts for any single day in any preceding year were **3,365.** This year we have received **3,944** names in a single day! This, for ten working hours, is equivalent to OVER SIX SUBSCRIBERS A MINUTE!.....We tender our thanks to all the kind friends who have helped to secure this advance in our list of readers. We shall be thankful for a continuance of the same favors. Now is the time to lay in the year's stock of plans, hints, and suggestions for the summer work on the farm, in the Garden, and in the Household, etc. .....It will be seen on another page that the Publishers continue their offers of fine Premiums, which are very desirable, and may be secured by a large number of our friends during this and the succeeding month.

West and South.—A long article from a special Western correspondent came too late for this month. We solicit communications on practical local topics from all our readers at the West and far South.

New York State Poultry Society.—The annual meeting and election of officers of this society was held on the 11th of January, at which time notable changes were made in the administration. Those elected for the current year are T. B. Kingsland, of New York City, *President*, M. C. Weld, of New York, *Corresponding Secretary*, G. H. Leavitt, of Flushing, L. I., *Recording Secretary*, Wm. Simpson, Jr., of West Farms, *Treasurer*. Some changes were also made in the list of Vice-Presidents, and in the Executive Committee. Votes of thanks were passed. A very great degree of harmony appeared to prevail among members at the close of the meeting. All communications with reference to the Society should be addressed to the Corresponding Secretary, Col. M. C. Weld, 245 Broadway, New York City.

Pennsylvania State Poultry Society.—A more satisfactory exhibition than the second annual one of this Society, which closed in Philadelphia on the 25th of Dec., has probably never been held in this country. The number of fowls was not large, but their quality was excellent, Light Brahmas, as usual, being largely represented. The successful exhibitor in this class at the first exhibition again received the highest honors, a result mainly due to the system of feeding he pursues. Dark Brahmas, and Buff and Partridge Cochins were shown, but the display of French fowls was meagre, no Crevecœurs being exhibited. Mrs. Sherlock, of New York, was awarded first premium for Houdans. Fine Hamburgs, of all the varieties, were shown in profusion. There were several coops of cross-bred fowls,—first-class birds for the table. Cross-breeding should receive more attention from breeders than has hitherto been given. The collection of water fowls was of great excellence. A pair of pet Rocky Mountain goats, a cage of different varieties of diminutive African birds, and trout in different stages of growth, attracted much attention. The most extensive collection of fowls was exhibited by the President, Mr. Herstine. They were entered for exhibition only, which is commendable, and worthy of imitation by officers of other societies.

Farm Wages.—M. D. Miller reports from Atchison Co., Kansas, the following average farm wages:

WHEAT.—1865.-3 bush. per week with board, 3½ without.
1867.-2¾ " " " 3¼ "
1869.-6½ " " " 7½ "

CORN.—1865.—5 bush. per week with board, 7½ without.
1867.—8½ " " " 9¾ "
1869.—15 " " " 18 "

Is not the additional allowance for "without board" far too small? Let us have many correct reports.

How to Import Stock.—"J. W. H." Breeders who have trustworthy foreign correspondents, that will select and purchase and ship stock for them, may import with little trouble, provided the animals come consigned to careful parties, who will look after them on landing; otherwise stock importation is troublesome as well as expensive. Mr. W. H. T. Hughes has established a depot at the port of New York, is prepared to learn the wants of American breeders, and import for them, selecting the stock through responsible parties in England and elsewhere, each shipment being accompanied by an especial attendant. The animals we have seen of his importation arrived in fine condition, and were good specimens of their breeds.

Enormous Cattle.—Mr. George Ayrault, of Poughkeepsie, N. Y., has raised and fattened four bullocks, which are now ripe for market, and have been sold to Wm. Laylor, butcher, of Centre Market. They are 6 years old—the lightest one is said to weigh 3,300 pounds. They will be on exhibition the first of February in New York City, and butchered before Washington's birthday. We shall take pains to investigate their merits.

Sundry Humbugs.—If there could be a satisfactory feature in this whole swindling business, it would be found in the fact that so large a part of the efforts of the present operators are aimed at those who are themselves dishonest. For example, many hundreds of thousands of circulars have recently been sent out, offering counterfeit money. Of course no one bites at the tempting bait but those who are willing to circulate the "stuff," and it is no pity that they loose all the money they send; it is only changing genuine money from the pocket of one rogue to that of another. Of this character is the new scheme of the "FOURTH (st.) NATIONAL BANKING COMPANY OF NEW YORK." The operators claiming to be president, cashier, etc., propose to send out a few hundred thousand dollars of their bills, all over the country, and then "fail" about next May. They offer half the profits to those who circulate the bills. They want a deposit of $10 as security from those who order a package of the bills. The "Banking House" we found to be a basement room, with a cheap desk, two rickety chairs, and a boy, who said the "President" and "Cashier" had gone down to Wall street, and "didn't say when they would be back." We believe not many of the letters to this concern have got beyond the "dead letter office." The money *ought* not to be returned to the dishonest senders. [The genuine Fourth National Bank, Nassau St., Cor. Pine, is one of our best city Banks.] . .. The counterfeit money circulars of J. P. Waters & Co., H. Lotz & Co., Porter & Co., Clement & Co., etc., have come to us during January from a great number of our readers, some of whom inquire why these fellows are not stopped. If any one will carefully examine these circulars, they will see that they try to avoid offering counterfeit money. They really send only fac-similes, which are merely little photographs of the currency, worth nothing to pass as money of any kind. The operators are very careful never to get caught with a single dollar of counterfeit money in their hands..... For other names see our last month's humbug column. As fast as these swindling firms are detected, their letters at the Post-office are stopped, and go to Washington. .....Even among the twelve Disciples of our Saviour, there was one Judas,—rather a consolation to christian people, when a supposed good man turns out to be a villain. There are Judases even among our Postmasters, and the counterfeit money swindles have helped bring some of them to light. Several have been detected in trying to obtain counterfeit money for circulation. Of course they were beheaded in short meter. The Post-office Department has an eye on several not yet removed. .....Watson, Graff & Co., Importers, etc., (new names.) and also G. W. Harris & Co., "Bankers and Receivers for the Shareholders," appear to be still stealing simple people's money by pretending to have $200 watches for them from Riverside Enterprises, and Prize Concerts, which will be forwarded on receipt of $10 to $13 cash for ex-

penses. They are nothing else than mean thieves, who steal from the ignorant and foolish, and usually from the poorest class of persons.....The Humbug complained of by "Anonymous," of Lawrence, Kansas, does not belong to the class discussed in these columns.....Costly advertising is that of one Taylor, who offers to send a lottery ticket, *sure* to draw a first-class prize, worth ever so many thousands of dollars, to each of a million or less people who will send him $1, and tell their neighbors who bought their tickets for them. As thirty-one of these offers went to one small Post-office, he proposes to give some $60,000 for advertising his business in a small country place—otherwise he would keep the tickets and draw the money for himself! Whew! How liberal some of these lottery dealers are! Lloyd, Semmes & Co. are nearly as liberal, for they propose to give $10,000 to the fools who remit them $10 for tickets.....To many inquirers. The "Children's Aid Society" of this city, of which Chas. L. Brace, 19 E. 4th street, is Secretary, Wm. A. Booth, 100 Wall street, President, and J. E. Williams, Metropolitan Bank, 108 Broadway, Treasurer, is *not* a humbug, but an efficient, valuable Society, doing a world of good, and worthy of the support of all good people. The circulars of this Society returned to us for inspection, with the above names and addresses on them, are genuine.....Beware of cheap oils, and don't invest your money in "rights" for selling until you know just what and *whom* you are dealing with. We have several ingenious circulars, filled with great pretensions, and making prodigious offers to "agents."....A Salem, Mass., gentleman sent $1 to Nassau street, New York, for a "Parlor Steam Engine," and after long waiting and writing, got a circular stating that the thing had "busted," and was dangerous, and that a book would be sent for the dollar. It finally came—"a mean, low, paper covered book, worth (or *costing*) about 10 cents." The Boston Magazine should be careful *what* and for whom they advertise.....Harris, or any other man, who offers to send for $1 "a Silver Cased Watch, patent lever movement, hunting cased, full jeweled, and warranted a correct time-keeper," is a swindler. So of the "Ladies Watches," etc.....A New York concern offers pay for lists of names of persons afflicted with certain diseases. Pray don't furnish them as a guide for hurling at the unfortunates a lot of circulars of "Patent" or "Quack" medicines. These circulars beget anxieties, and false hopes, and medicine gulping, of ten thousand times more damage to the patients than the medicines will ever be beneficial. One of these "agency" circulars is a fraud—nobody at the place advertised.....To C. M. W., and other inquirers. The "great Doctors" you inquire about, and *all* other advertising Doctors, are humbugs. We don't know of a single advertising doctor in whose hands we would place a cent of money, or entrust the life of a friend, on any account. We don't speak at random. The religious papers publishing their advertisements ought to be sent to purgatory—for a season.

Fresh Manure for Corn.—"Had I better apply fresh livery-stable manure broadcast or in the furrow for corn?"—Spread it over the whole surface and plow it under. If the soil is poor, put a little well rotted manure in the furrow or hill, to give the plants a good start. In the mild climate of Tennessee, by drawing out your stable manure now, and piling it in a heap in the field, covering it with three or four inches of soil, and turning it once or twice, it will ferment rapidly, and be ready to apply to corn in the hill.

A Ton of Manure.—Several have asked what Mr. Henderson, in his "Gardening for Profit," means by a ton of manure. He means 2,000 lbs. He used this term as being more definite than load.

Value of a Yardful of Manure.—Mr. J. Townley, Jr., of Elizabeth, N. J., calculates to have 300 loads of manure in his yard this spring. He feeds 18 head of neat stock, and 3 horses. They eat 100 bushels of "beer grains" in winter, and 50 bushels in summer, per week, besides about 118 bushels of corn-meal in the course of the year. The meal and grains are fed upon hay and corn-stalks, cut up and soaked. He wants to know how much his 300 loads of manure will be worth.—We estimate from the figures given in the tables in the Agricultural Annual for 1868, and repeated in 1869, and from those in Johnson's "How Crops Grow," that the manure made from feeding 3,900 bushels of brewer's grains is worth $590.28; that from the 24½ tons of meal, $18.62; while (allowing only one ton and a half of hay and stalks to each animal,) that from the coarse fodder will be worth $222.05, making in all $830.95, based upon the price of Peruvian guano, when it was $60 gold, per ton. We have not estimated the value of the litter, forming a good part of the bulk of the manure. This would, at a low estimate, add $170 to the value above stated, making $1000 for the 300 loads. If the hay consists largely of clover, it would materially add to this valuation. In adding freely litter of swamp grasses, leaves, dry muck, etc., the bulk will be increased more rapidly than the value per load, but the aggregate increase of value would be very great—thus, instead of 300 loads, worth $1,000, with these 21 head of stock 600 loads, worth $1,500, might easily be made.

Proceedings of the Am. Pomological Society.—With commendable promptness the proceedings of the 12th session of the society, held in Sept. last, came to us early in January, in a well printed volume of about 240 pages. The discussions at the meeting are given, reports of various committees, and the Catalogue of Fruits. Every fruit grower should have these biennial volumes, which he can only obtain by remitting $2 to Thomas P. James, Treasurer, Phila., which will constitute him a member of the society for two years. The payment of $10 makes one a life member.

Geological Report of the Exploration of the Yellowstone and Missouri Rivers, by Dr. F. V. Hayden. This is the geologist's account of a survey made under the direction of Capt. (now Col.) Reynolds, and the U. S. Engineers, and gives the geological features of the mineral resources of a region of which we have hitherto had but an imperfect history. An admirable map accompanies the report, and gives at a glance the geological formations of the different portions of the country. The government explorations have been of great value to the early settlers in the far West, and we always welcome reports like the present as evidences of government money well spent.—We suppose copies may be obtained from members of Congress.

Ferrets.—"F. R. E.," Cleveland, O., writes:—"The article in January number relative to Ferrets should be read by every farmer. My good friend, Professor J. P. Kirtland, keeps a ferret, and has no trouble from mice or rats. He makes a pet of it, as he does of all useful animals which he has around him. He keeps it in a box, takes it out, and gives it a chance to work among the rats from time to time, then plays with it awhile, and puts it away in its nest again. There is only one trouble in keeping ferrets, and that is, they are cross towards children, and disposed to bite; but when provided with a box or pen, and there kept, except when wanted for use, no trouble ensues.

Lilacs.—Mrs. A. C. McCarter. There are two or three varieties of Lilac that are near enough to red to be called so in common language. A poet often calls a flower by any color that suits his rhyme or meter best.

Special Premium.—The Elegant Picture "Dandelion Time." By Mrs. Lilly M. Spencer.—The name of Mrs. Spencer has become familiar throughout the country. Though of a poetic imagination, and the author of many paintings, which comprise classical and allegorical subjects, she is best known for her pictures of domestic life. The publishers of the *American Agriculturist* have purchased of her the beautiful painting called "Dandelion Time," and having issued it as a chromo, it is now offered by them for sale. But in response to requests from many who desire to secure the picture without paying money for it, we have consented to offer it as a special premium for subscribers.

In this elegant picture, are three children, of whom the youngest is a plump, rosy babe, and a huge Newfoundland dog, which they have decked with a dandelion wreath, and are represented out at play upon the green grass. The scene is full of happy life, and cannot fail to delight both old and young. The picture would prove an ornament in any home, and be a most beautiful and acceptable present to make to a friend. It is 13 by 18 inches in size, mounted on linen, and will be sent by mail, in a tube with all materials and directions for stretching. Price, post-paid, $6.00. We will send it in this form,—for 10 subscribers at $1.50 each, or 30 at $1 each. The price of this picture in a neat black-walnut frame, gilt band, is $9. For 15 subscribers at $1.50 each, or 45 at $1 each, we will send it in this style by express, carefully boxed, *the receiver to pay express charges.*

Flower Questions.—Mrs. "W. G. B.," Fort Howard (State?). You do not say whether the Fuchsia dropped its buds in the house or out-doors. If the latter, it probably had too much sun. But few kinds will bloom in winter....Probably your season is not long enough for the Madeira vine, or it may have had too much shade....The Gladiolus formed one new bulb—sometimes they form several. The old one always perishes. The little bulbs, the size of a pen, and smaller, will grow, and in time produce flowering bulbs....The Petunia is probably an exhausted plant. When taken up in the fall, it should have been cut back severely. The best way is to start new plants from cuttings for winter blooming in summer. Old plants seldom do well....The reason some Tuberoses bloomed and some did not, may be owing to the manner in which the bulbs were kept the winter before. If kept too cold, they fail.

Nest Eggs.—C. A. Davis, Berkley, Mass., makes nest eggs from real ones as follows: A sufficiently large opening is made to allow the shell to be emptied of its contents. Plaster of Paris is then mixed with water to the consistency of cream, and the shells filled with the mixture, which hardens in a short time. The result is a nest egg, perfect in shape and color, and still serviceable if the shell gets broken off.

Oats.—E. J. Dobrel, Ill. Oats do well on sod land plowed in the spring. Barley seldom does.

A Green-leaf in Trouble.—"Mary Greenleaf" writes such a pleasant letter that we are sorry not to be able to print it and an answer, which would be, of necessity, much longer than the letter. If she will get Gray's Lessons in Botany, and read them appreciatively, she will understand more about plant structure. We can only say now that we call plants by other names than those she first learned for them, for reasons, to explain which, would require an essay on nomenclature. We acknowledge to being one of the "dreadful reformers," if a desire to be correct makes us one.

Special Premium.—The Eumelan Grape.—This remarkable grape is now attracting much attention, being a beautiful black grape of the first quality, and ripening some time before the Delaware. It has already been planted in many different sections of the country, from the Atlantic to west of the Mississippi and the promises of its success are most flattering. It has proved, generally, vigorous and hardy. The quality of the fruit is, in our judgment, as good as any variety with which we are familiar, except it be the Iona. It has taken the highest premium for quality at many exhibitions this fall. We are convinced that this grape is worthy of general trial, and we shall take much interest in seeing its true merits developed. We have made arrangements with Messrs. Hasbrouck & Bushnell, of Iona, near Peekskill, N. Y., who have the original stock of the vines, and a very superior stock of the young plants, to furnish us a limited number of No. 1, and extra vines *for the purpose of offering them as premiums*, and we give our subscribers the benefit of our large purchase by furnishing the vines as premiums at the lowest rate per thousand. We furnish the *American Agriculturist*, with Eumelan vines, as follows;

1 copy	for one year and	1	No. 1. Eumelan vine	for					$2.50
4 copies	"	"	"	"	4	"	"	"	"	9.00
10	"	"	"	"	10	"	"	"	"	22.00
20	"	"	"	"	20	"	"	"	"	40.00

We will furnish an *Extra quality of Vine*, as follows:

1 copy	for one year and	1	Extra Eumelan vine	for					$3.25
4 copies	"	"	"	"	4	"	"	"	"	12.00
10	"	"	"	"	10	"	"	"	"	29.50
20	"	"	"	"	20	"	"	"	"	55.00

Or we will *give*

One No. 1 Eumelan vine for 4 subscribers at $1.50 each.
Or one Extra " " " 6 " " 1.50 "

These vines will be of really No. 1 and extra quality, and will be sent by mail, postage paid, or boxed, by express, the receiver paying express charges only. Orders received too late for sending this fall will be entered, and the vines forwarded as soon as it is safe in the spring.

"Ex-Squire."—Please send your address.

Kerosene.—The annual report of the N. Y. Fire Marshal for 1869 shows that one-tenth of the fires last year resulted from the use of Kerosene. Ten persons were burned to death, and thirty-five more or less injured. The wonder is that the fires and casualities were so few when we consider the great amount of dangerous kerosene in use. Insist upon having good kerosene, and the dealers will provide it. Pratt's Astral Oil is so good that we have placed it on our premium list.

Weeds.—A. C. Cook, Iowa. We call a plant a weed, without reference to its utility when cultivated. Pine-apples would be weeds if they persisted in growing where we wished to raise cabbages. The fibre of the "weed" sent seems strong—we are unable to give any opinion as to its comparative value.

Twin Steers.—The central engraving upon the cover is from a photograph of a pair of Durham twin steers, owned by Mr. Daniel W. Barnes, of Munson, Geauga Co., O. They are one year old, weigh 2,100 lbs., and took the first premium at the Ohio State Fair.

Cranberries.—"J. C.," Quincy, Ill. Cranberries cannot be raised with success unless the land can be drained, and we doubt the practicability of your plan.

The Eumelan Grape.—The venerable Dr. Kirtland, of Cleveland, O., had a vine of the Eumelan on trial among the first of those sent out. On Nov. 27th last, he wrote as follows: "The experience of the past season with the Eumelan grape has, with me, been very favorable. While many other varieties suffered from mildew, scorching of the foliage, and impairment of the fruit, this variety seemed to escape from any unfavorable impression of the unusual season. Its growth was strong and healthy, and it ripened its *three* bunches of fruit in high perfection by the side of Delaware vines, whose fruit failed to attain maturity. I now consider the Eumelan a variety of much promise."—These vines are offered singly in connection with the *Am. Agriculturist* at the thousand price, and as a premium for a few subscribers.

Pyles' Seedling.—An apple with this name was sent from Delaware Co., Pa. It appears like a good keeper, but we have many of its season of better quality.

Fruit Garden.—"Ex.," Lunenberg, Mass. Cross plow the piece where clover sod was turned under in the fall, and put on a good dressing of manure and plow again, and it will be in proper condition for small fruits.

Cedar Apples is the name of the fungus found on the Red Cedar, and sent by "Eureka" from Lansing, Iowa. See account in *Agriculturist*, Aug., 1866.

Root Pruning.—"J. A.," Sunderland, Vt. Root pruning is done when vegetation is at rest, either in the autumn or very early in spring. Probably the curculio caused the failure of your cherry crop.

Freezing Seeds.—A correspondent asks us, what is the use of exposing peach and plum seeds to the action of frost. The shells of these seeds are composed of two thick and woody halves or valves; the germ can only force its way out by separating these halves of the stone. When the stones have been allowed to become dry, they cohere with such firmness, that the germinating seed is not able to part them, but if they are exposed to alternate freezing and thawing the halves usually separate with great readiness. Should any escape the action of frost, they are carefully cracked. By covering the seeds with earth, tan or other material, and allowing them to remain exposed through the winter, we imitate that which happens to the seed when the fruit propagates itself in the state of nature.

Peas and Strawberries.—S. Payne, Jacksonville, Fla., tries to make us discontented with our lot by sending peas and strawberries picked at Jacksonville, Fla., Dec. 16. We shall be even with him next June.

Lemon Tree.—S. Reynolds, Kane Co., Ill. Your seedling Lemon will bear sooner and give better fruit if budded. The operation is done the same as on the peach or other fruit, at a time when the bark will lift. You must have buds of an improved kind. If there is any florist near, better send the plant to him to be budded.

Strawberries Mixing.—"B. S. B.," Concord, Pa. Varieties of strawberries "mix" only by the runners of one sort reaching over among and becoming established in the bed of another variety. Two and a half feet apart, as you propose, should be wide enough to prevent mixing if a little care be taken. If neglected, and the runners of both kinds be allowed to root in the intermediate space, there will soon be confusion.

Sanford Corn.—Reports from several correspondents in various parts of the country show that this is an early and productive variety.

Opium.—Mr. James Brittain, Prospect Plains, N. J., writes that he made an experiment in opium culture, following the proper plan of gathering the exudation from the wounded capsules. Judging from a small experiment, he thinks it must bring $20 per lb. to pay. As the wholesale price is $12, Mr. B's first attempt at opium culture does not look encouraging. Let us hear from those who have tried it farther South.

Black Knot.—"J. L. H." The finding of insects in a black knot no more prove them to be the cause of it, than finding rats in a corn-crib prove that they are the origin of the corn. It may be a "philosophical solution," but not in accordance with facts. It is just as well settled that the black knot is caused by a fungus, as that a plum tree grows from a seed. The remedy proposed—cutting them out with a knife when first forming, is the true one. They are usually left too late.

The "Grape Culturist."—We regret to notice that Mr. Husmann finds the support of this journal insufficient to warrant him in continuing it, unless the subscription is largely increased. There should be enough engaged in grape culture to support a journal devoted to their specialty. The journal has been ably conducted, and the price, $1 a year, very low.

Many Apples.—"R.," Centre Co., Pa., informs us that "Henry Garver, of Mifflin Co., Pa., raised this year on a branch 26 inches long, and ¼ of an inch thick, 20 Pennock apples, the aggregate weight of which was (after thorough drying in the house) 7½ pounds."

White Grass.—"J. L. H.," Tuftonborough, N. H., writes that "White-grass" is taking possession of fields and pastures, and asks if salt or ashes will prevent it.—We suppose the grass referred to to be *Holcus lanatus*, the Velvet-grass, which prefers poor soils and is nearly worthless. Enriching the land and encouraging the growth of better grasses will probably drive it out. We should look for no good result from any specific application to destroy the grass, except so far as it acted as a fertilizer; hence ashes would be of much use, and salt but very little.

"The Best Thing in the World."—Many recipes for remedies come to us, with the assurance that they are the "best thing in the world," for this or that disease. It is astonishing, the number of people who have tried everything in the world and found out the best. We very rarely publish any remedies, and these only of the most simple kind. There is altogether enough "dosing" with drugs on the slightest provocation without our encouraging it. When we see the dangerous remedies published by some of our cotemporaries, we pity those who try them. Every intelligent housekeeper has a few things at hand to use in such indispositions as will not yield to good nursing and dieting, as well as in sudden emergencies. Doctoring, as such, had better be left to those who understand it.

Pears.—"B. S. B." The Bloodgood and Bartlett will doubtless suit you for very early and later. Strawberries and raspberries may be cultivated between the rows of trees in a young pear orchard.

Papasiculteur.—A Frenchman calls himself a *Papasiculteur*. He is not a cultivator of Papaws, but only a potato grower. *Papas* is the Spanish for potatoes.

Arbor Vitæ and other Trees.—"A Young Housekeeper." The turning of the foliage of the Arbor Vitæ is not due to any want of pruning or other matter within control. It is the great fault of the tree. This and other evergreens are best transplanted in spring and pruned in autumn. The questions about other trees and shrubs can only be answered on knowing whether the writer lives in Maine or Texas, a bit of information not imparted.

Creaky Boots.—"W. L. D." finds his entrance into church attracts too much attention on account of his creaky boots, and asks us for a remedy. The noise is caused by the rubbing together of two surfaces of leather in the soles. It usually disappears when the boots are somewhat worn. Soak the soles thoroughly with warm water, and while wet apply a liberal coating of oil or grease and dry it in. This will add considerably to the wear of the boots, and cure all but the most inveterate cases of creaking.

Plowing Under Clover on Heavy Land.—Where hay and pasturage are cheap, the practice of plowing under clover to ameliorate and enrich heavy land is undoubtedly a good one. The only question to be considered is, whether the soil cannot be rendered as mellow by the repeated use of the plow and cultivator at a less cost, and destroy the weeds at the same time. The answer depends very much on circumstances.

Not Norway Oats.—The sample of oats sent by John Butler, of New Lisbon (State not given), are not Norway oats, in our opinion.

Steaming Corn for Food.—"P. W. F.," of Phillipsburg, N. J., asks the best and cheapest way to steam corn for a limited number of pigs. The question is rather indefinite. The best, when a barrelful is wanted at a time, is to put the corn (on the ear) into a pork barrel, and cover it with water, putting on a layer of roots to keep the corn down. Then run the flexible nozzle of the steamer into the barrel, nearly to the bottom, and turn on the steam. If there is no steamer on the place, and a less quantity is wanted at a time, it will answer to take a wash boiler, or other large vessel, and fill it with corn (on the ear), that has been soaked in water for 36 hours, pouring in 3 inches of water and standing the vessel on the fire. Cover the top tightly, and boil for half an hour or more; before the water is all evaporated, remove from the fire and cover it closely with a blanket to keep it warm. After a couple of hours, it will have cooked itself by means of its accumulated heat.

Buckthorn and Gophers.—"B H.," Glenroy, Iowa, says that he never knew a Buckthorn hedge to be injured by gophers; also, that insects do not trouble it, and cattle will not browse upon it.

Brewer's Grains for Poultry Feed.—"I. D. R." We have never used them, but think they could do no harm fed with moderation. If the experience of any of our readers bears upon the subject, we would be glad to have it communicated.

Color of Sefton Pigs.—A Rhode Island correspondent asks the color of Sefton swine. They are white and black; sometimes all black, but more often all white—generally white with black or smoky spots.

The Taste of Turnips in Butter. B. H. Baldwin, of Bergen Co., N. J., says: "When cows are fed upon turnips or cabbage, the taste may be prevented in the butter by adding about four tablespoonfuls of a solution of saltpetre (1 oz. to the pint of water) to the cream pot before putting in any cream, and stirring thoroughly each time that cream is added." This is his experience, and we have heard the same from others.

Labor per Acre.—On a farm of 800 acres the late Mr. Hudson, of Norfolk, Eng., paid £2,000 per annum for labor—say $12 per acre, in gold. Here the same labor would cost at least $20 per acre.

The Best Time to Sow Plaster.—This is a question we are frequently asked. We would draw the plaster when the roads are good, or when there is good sleighing. Then sow the plaster on the clover at any time you can most conveniently get on the land—the earlier in the spring the better. But it is better to sow it even as late as May than not at all.

Shall we Sow Barley this Spring?—If you have been in the habit of sowing barley, and your land is well suited for the crop, do not change your system. Barley is as likely to pay as any other crop. But if you have never raised barley, do not rush into its culture simply because it has, for a year or two past, paid better than wheat. Barley requires the best of soil and culture, and few farmers, who have had no experience with the crop, would be likely to succeed the first year.

Boiled Wheat for Cows.—In many sections wheat, at the present time, is the cheapest grain that can be fed to stock. We have found boiled wheat excellent food for milch cows. When wheat costs less than $1.25 per bushel, give the cows from two to four quarts each per day. It will pay. It need not be ground. Put it in a kettle and cover it with water, add a little meal, and boil until it bursts open. If the pigs get a little of the same article it will not hurt them.

Cost of Keeping a Cow.—An English agricultural paper thinks it costs £20 a year to keep a thorough-bred Shorthorn cow in food and attendance.

What to Do with Farrow Cows.—Feed them liberally and they will give rich milk, though, perhaps, not much of it. Let them have three or four quarts of meal a day through the winter and spring, and do not stop giving it them when grass comes. As soon as it dries them up they will be fit for the butcher.

Will it Pay to Use Plaster at $10 per Ton? asks a farmer in Wisconsin. We cannot say. It depends a good deal on the soil. Try a little on clover and on corn, and note the result. On dry upland, the probabilities are that it will pay well, although $10 per ton is a high price.

Seeding Down with Barley.—Of all spring crops, barley is the best to sow clover and grass seeds with. If the land is in as good condition as it should be to insure a good crop of barley, and it is sown as early as it should be, clover will "catch" as well as if sown on winter wheat.

Harrowing Manure.—Where manure has been spread on grass land during the winter, it should be harrowed as early in the spring as possible. A few warm days will soften the upper part of the manure while the ground is still frozen, and it is well to avail ourselves of the opportunity to go over the field with a brush-harrow. We have found Thomas' harrow, which has slanting teeth, a good implement for the purpose. A common harrow, turned upside down, might break the lumps, and do good work. At any rate, if the field is to be pastured, do not neglect to harrow it in some way.

Substitutes for "Muck."—Swamp muck is vegetable matter in a state of slow decomposition. In the swamp the decomposition is exceedingly slow—when dried and mingled with the soil, much more rapid. Any vegetable matter may be used in a manure heap as a substitute for swamp muck or peat. Wood mold is the closest approach to it. The parings of wet meadow land, or any grass sods taken from the fence rows or sides of the road, laid in a heap to decay, resemble it closely, and both these articles may be used when dry in the stables or yards, as absorbents. They will make mud, however, if they get very wet.

Hay and Straw Cutter.—"J. W. B.," Dutchess Co., N. Y., asks, "What hand machine, for cutting hay and straw, do you consider the best, and least liable to get out of order?"—We regard the Copper Strip Feed Cutter as decidedly the best as a hand machine, and know of some large stables in New York City where power cutters are set aside, and two men, in an hour's time, daily, cut all the hay for 100 horses, with a large sized Copper Strip cutter. They are extensively advertised.

Tan-bark Ashes.—"L. H. C.," New Madison, O. "Are ashes made by burning spent tan-bark at the tan-yard of any value as manure on stiff, clayey land?"—Yes; of high value.—"Will it pay to haul it two miles?"—Yes; ten.—"What crops are most benefited?"—Grass, potatoes, tobacco. It must be applied according to the crop—broadcast, in the hill, or upon the hill, just as the plants break the ground.

Rotary Harrows.—A "Subscriber," of Salem, N. C., asks for instructions how to make a Rotary Harrow. The only implements of this kind with which we are acquainted which work well are patented, and upon the patented device their usefulness depends. They possess several advantages over other harrows, in that they drag evenly on side hills, cover grain very well, smooth down the furrows in sod land, make a mellow seed-bed without cross-harrowing, and tear up no sods.

Nutritive Value of Beans.—"X." asks what quantity of small, white, old beans equals one bushel of good corn?—According to Wolff and Kopp's tables, given in Johnson's "How Crops Grow." Field beans contain 25½ per cent of albuminoids, or nutritive substances, and maize contains but 10. On the other hand, maize contains 7 per cent of fat, or oil, and beans but 2 per cent. It is safe to say beans are worth something more than twice as much as corn if judiciously fed.

Boiled Beans, or Bean-Meal.—We know no reason why boiled beans should not be quite as healthy as bean-meal for any kind of stock except sheep.

Good Crops of Potatoes and of Corn.—John Kiernan has charge of the farm and garden of the Sisters of Charity, at Mt. St. Vincent, on the Hudson. He sends us a statement by a civil engineer in regard to his crop of Harison potatoes, which certifies to a yield varying, in different parts of the field, from 400 bushels to 640 bushels per acre. The total yield is not stated. They were planted early in May, in hills 4 feet apart each way, on clean land, in fine condition, cultivated twice, and kept clean of weeds until they stopped growing. The corn crop was planted 4 feet each way, dressed with top manure; four stalks were left to the hill, and 70 bushels of shelled corn were harvested. The land was plowed in the fall and again in the spring.

The Cow "Faney."—In compliance with the request of a correspondent, we publish the following measurements of this animal (pictured in our December number). Length from base of horn to point of rump, 6 feet, 7 inches; length from centre of hip bone to point of rump, 1 foot, 6 inches; height at hip, 3 feet, 10½ inches; height at shoulder, 4 feet; height at belly, from ground, 1 foot, 8 inches; girth around the chest, 5 feet, 2½ inches; girth around the belly, 7 feet, 2 inches; circumference of fore leg below the knee, 5¾ inches.

How to Make it Pay.—"W. L. C.," of Appanoose Co., Iowa, writes that he needs our advice about managing a 40-acre farm to make it pay. (1.) "How shall I arrange the buildings? (2.) What kind and how much grain shall I raise? (3.) What kind and how much live-stock shall I keep to consume the grain, etc., to best advantage?"—1. Put the buildings as near the centre of the farm as you can, having due reference to convenience to the highway, to water, to shelter from prevailing cold winds, etc. Better haul crops down than up hill to the barns. 2 and 3. Keep half as many cows or beef animals as you can cut and cure tons of good hay, and fat as many beeves or twice as many hogs as you can raise acres of corn that will yield twenty bushels or more per acre. Keep grade Shorthorn cattle, and Chester County hogs. Raise, besides, some corn fodder for shoats and cows in summer; some roots, for cows and sheep; potatoes and buckwheat. When your land is in good tilth, raise wheat, taking, at first, your neighbor's advice as to variety. Let your sales be beef, pork, poultry, and wheat, and perhaps wool and lambs. Apply all the manure to corn. Avoid under estimates, and know where the money goes.

Apples for Minnesota.—The State Horticultural Society, at its last annual meeting, *Resolved*, That the following varieties of apples have been found worthy to be recommended for planting in Minnesota.—Duchess of Oldenburgh; Haas; St. Lawrence; Price's Sweet; Famouse; Golden Russet; Red Astrachan; Talman's Sweet; Tetoffsky; Saxton, or Fall Stripe; Perry Russet; Ben Davis, or New York Pippin.

Mixing Soil with Manure.—Heavy loam or clay mixed with manure in a heap, has a tendency to retard fermentation, and may, consequently, be used to advantage with horse or sheep manure, which, when placed in a loose heap by themselves, ferment too rapidly. The clay will also hold the ammonia, and prevent its escape from the heap. On the other hand, sandy loam, or sand mixed with manure, regulates fermentation, and may be used to advantage with hog and cow manure, which is of a sluggish nature. The better way, however, is to mix all these manures together as made.

Exhibition at Cordova.—A fair will be held at Cordova, Argentine Republic, commencing on April 17th. Liberal facilities are offered to exhibitors. Manufacturers and others wishing to show implements, machinery, etc., can obtain circulars by applying to the Argentine Minister at Washington, or to the Consuls of that country at any of the large seaport cities.

Geese Without a Pond.—"I. D. R.," asks if "A small tub say two feet in diameter, and one foot deep will hold sufficient water for a pair of geese during breeding time." The tub specified is too small; give them a tub made by sawing an oil cask in two, or a good big trough, one deep enough for them to bathe in, and they will do well enough. Wild geese and China geese require ponds. The earlier goslings are hatched the better; they should not have water enough to swim in until two or three weeks old, for they get chilled.

Ice-House.—A "Subscriber" writes to know how it will do to enclose an ice-house with three thicknesses of boards, leaving two air spaces, instead of the usual way here of having *one* space, and that filled with sawdust or tan-bark. He thinks it would be more durable, as there would be no moisture in contact with the frame, and it would be less pervious to heat. This plan would not work well, because there would be a constant circulation of air in the air spaces. The aim in making ice-houses and in filling them is, to prevent any circulation of air, and this is best effected by a non-conducting filling, like sawdust, in the air spaces, and straw or wheat chaff under and around the ice.

Shares' Harrow with Steel Teeth.—John D. Parker, Adams Run, S. C., thinks this harrow, from our description of it in the November *Agriculturist*, would be "Useful in their rice fields for breaking up and mellowing the sods after plowing."—If our correspondent buys one we should be glad to hear how it works. The old Shares' harrow worked well, even with cast-iron teeth, and we shall be disappointed if, now that the teeth, or more properly the cutters, are made of steel, it does not prove a most effective implement for preparing and mellowing all kinds of sod land, or for covering peas and other grain when sown broadcast.

Mangy Pigs.—"M.," of Champagne Co., Ohio, inquires what he shall do to prevent his pigs becoming mangy and says: "They are well fed, well bedded, with wheat straw, and the pens are cleaned and bedding changed two and three times a week, and yet some of them will become affected."—Mange is a disease caused by the burrowing and breeding of a minute insect in the skin, like the itch in man, scab in sheep, etc. If pigs which have it or have been exposed to it are washed with Carbolic or Cresylic soap, and their pens and bedding sprinkled with the same, a cure is easily affected. More than one application might be required, and it would be best to wash the animals at an interval of a week.

Farm Wages.—Price of Ag'l Implements.—A farmer of Fulton, Mo., writes: "Some wholesome truths were set forth in the December *Agriculturist* under the heading, 'Farm Wages Must Come Down.' There is a general conviction among farmers that labor must come down. Some of us are already making arrangements to do without hiring so much as usual the coming season unless there is a marked decline. We have to pay high prices for all kinds of agricultural machinery, and are so far from the factories that, if any piece gives way, the freight is as great as its cost, besides the delay and loss in that way. It seems as if the reputation of certain classes of implements and farm machinery were so well established, that if the manufacturers could hit upon some plan to put them into the hands of the farmer at first cost, without employing so many agents whose commissions the farmer has to pay, they would put more money into their own pockets. There are some classes of machinery that it costs more to sell than it does to make. Dealers are satisfied if they get $2 or $3 for ordering a farm wagon that sells for $100, but must have $15 to $25 for selling a reaper and mower, the cost of which, to the farmer, is $150 to $200. If any reliable manufacturer would advertise to ship machines for the actual sum that he receives for his machine, after paying agents for selling, he would sell more machines than he can do on the prevalent system.

To Get Rid of White Birches without plowing or grubbing, cut in winter or spring, and feed close with sheep; or, cut about mid-summer (June 20th) close to the ground and subsequently, as new shoots start once in three or four weeks.

Veterinary Instruction.—H. O. Fairchild, Steuben Co., N. Y., asks: "Will you inform me if there is a Veterinary School of any standing in New York City, or State?"—There is an excellent one, the N. Y. College of Veterinary Surgeons, on Lexington Avenue, N. Y. City. John Busteed, M. D., V. S., is President, and will, we doubt not, cheerfully answer questions in regard to the expense of gaining a thorough veterinary education in this country. This is the only veterinary school in the country so far as we know, which has any standing as an institution of science, or has the confidence of educated physicians and scientific men. It has a moderate endowment, very interesting collections of anatomical subjects, etc., a hospital in which animals of all kinds, not suffering from contagious diseases, are treated. Dr. Busteed is assisted by an able corps of Professors and assistants.

Sore Mouth in Cattle.—A correspondent in Arlington Co., Mo., writes that a disease is there prevalent called Black-tongue, Sore-tongue, and Sore-mouth. Several of his neighbors have lost cattle. The symptoms described are foaming at the mouth, and, inability to eat. Our friends of the Veterinary College advise a weak solution of carbolic acid—say 1 to 5 drops to the ounce of water—washing the mouth every few hours, allowing a little to be swallowed, and following this with mild tonics and food that will not irritate the mouth. Fluid preparations of gentian and iron in small doses, given with the feed, is a good tonic; for food give a warm gruel of oil meal or wheaten flour.

Joint Corn.—A variety of corn has been shown to us which is at least a curiosity, as it produces an ear at each joint. Each of the several stalks we saw had from 8 to 12 ears upon them. It is small in the ear and grain, like pop corn, but if, as is claimed, it will yield 200 bushels to the acre, it will prove valuable.

How to Feed Fowls.—Fowls are not fed for the mere sake of keeping them alive and healthy on the least possible amount of food. We wish to convert the food into flesh, or into eggs. In feeding for quick fattening it is understood that the poultry should be made to eat as much as possible. Our rule for feeding is to throw out the feed twice a day as long as the fowls will run after it and no longer. We are told, and it is our own experience also, that fowls thus fed will eat considerably more than if they can go to a feeding box and help themselves at all times. We want the fowls to eat; the more they eat, within reasonable bounds, the more eggs they will lay, the longer they will lay, and the better condition they will be in. Laying fowls should take exercise. If they can go to a trough and eat at any time they wish, they will take next to none. If they are fed but twice a day, they will hunt insects and wander much more. If fed soft feed such as wheat bran mixed with corn meal or ground oats, they will be hungry again in two hours after feeding, and be off after insects, etc. Give feed, then, only to adult fowls while they will run after it—soft feed morning, whole grain at evening. Keep them supplied with gravel, lime (plastering, or, better, oyster shells), ashes to dust in, and fresh pure water, some meat in winter, and they will be healthy and prolific.

Worms in Horses.—J. W. Bruce of Mass., asks for a cure for "the small intestinal worms in the horse." Give drachm doses of tartar emetic twice a day for two or three days, and follow with a mild purgative, say one of epsom salts, or four or five drachms of aloes.

The Best Way to Make the Best Butter. $50 Prize.

The Proprietors of the Blanchard churn, through their agents, R. H. Allen & Co., place in the hands of the publishers of the *American Agriculturist* the sum of *Fifty Dollars* ($50), to be awarded for the best practical essay on making and packing butter. The conditions are:

The essay should be brief, not exceeding 15 pages of foolscap paper, and thoroughly practical in its whole character. It is intended to be used as a Manual for Butter-making, not only to instruct the novice, but to be useful as a source of valuable hints to experienced butter-makers. It should include the management of the milk from the time it is drawn from the cow, the treatment of milk and cream in the dairy, churning, working, salting, packing, and marketing butter.—Each essay should be accompanied by the name of its author, in a sealed envelope, and must be received at the office of the *American Agriculturist*, (245 Broadway, New York) on or before March 10th, proximo. The essays will be submitted to a committee approved by the Editors, to be hereafter announced, and the prize essay, if deemed of sufficient merit, will be published in the *American Agriculturist*.

Some Facts about Butter.—The butter of commerce and economic use contains according to Way: Fat (margarine and olein), 82.70 per cent; cheesy matter or curd, 2.45 per cent; water, salt, milk, sugar, etc., 14.85 per cent. The fatty portion or true butter varies in its composition, consisting, as it does, of two fats, called margarine, which is a solid fat, and olein, which is an oily or liquid fat. Summer or grass butter contains about 40 per cent of margarine, and 60 of olein; while winter or hay butter contains about 65 per cent of margarine, and 35 of olein. If butter is melted at a temperature of 140° to 180°, the pure butter may be separated from the cheesy matter, water, salt, etc., and will become solid on cooling. If the pure butter stands long enough at a temperature about 70°, or a little higher, the solid and liquid fats will separate. Melted butter may be cooled to 90° before it begins to harden.

Linseed Oil-Cake, Oil-Cake, Oil-Meal.—The seed of Flax, called linseed, is valuable for the oil expressed from it, and which forms the basis of our best common paints. Vast quantities are annually consumed, the seed being partly derived from this country, but chiefly from the East Indies. The seed is ground, then heated, and subjected to enormous pressure, which frees it from its oil, and leaves it in hard, rough cakes, somewhat less than an inch in thickness. This is the linseed oil-cake, or oil-cake of commerce, and most of that made in this country is shipped to England. It is of high nutritive value, and the manure of animals fed upon it is very rich. It is laxative in its action upon the bowels, if used in large quantities, yet may be fed freely without fear of putting sheep or cattle off their feed; on this account it is well to mix it with the feed of both cattle and sheep. For horses, nothing is superior to it as an alterative diet, if fed in small quantities, say a pint three times a day. It gives a smooth coat, and loosens the bowels. Fed to beeves, it should be mixed with Indian meal in the proportion of one part oil-meal to two parts Indian meal. Fed to sheep, the cake is usually broken up into a coarse powder, no lumps being larger than the end of one's finger. The secretion of milk is greatly promoted by it, and if not fed in too large quantities, no foreign flavor or oiliness is imparted to the milk. It should always be fed with bran, corn-meal, or some other provender, about in the proportions above named. Its nutritive value, compared to maize, is as 28 to 10, as shown by analysis.

Hogs Fed on Cattle Droppings.—*Tape Worms.*—Tape worms exist in neat cattle as well as in other animals. They live and grow in the intestines. Joints capable of producing great numbers of eggs which hatch into the minute creatures that finally become tape worms, continually break off or separate from the parent worm, and passing through the intestines are "cast into the draught." Hogs, rats, and other animals which eat filthy food are likely to take them with their food into the stomach, and from this cause comes attacks of the disease in pigs called measles, and hence we have measly pork. This, if eaten raw or not well cooked, will produce tape worm in man and other animals. "A. E. T.," of Missouri, thus writes, describing a practice which should be unequivocally reprobated, no matter how profitable, as dangerous alike to man and beast, for the reason above given:—"The Editor who 'Walks and Talks' once stated that on the whole he did not think it paid to cook for cattle. Has he ever tried the Western practice of feeding corn raw in the car to the cattle, and letting the pigs clean up after them, feeding the shotes nothing else? A full fed steer will thus fatten or winter, it is said, one or two grown hogs. I have never seen a statement of the amount of beef and pork a bushel of corn will thus produce. Will you have the kindness to make the inquiry through the *American Agriculturist*. Objection may be made to the practice as not cleanly; but the hog is as much a crop as the cabbage, and we feed the latter, as well as all other garden truck, on the grossest food." Cabbages do not feed on living food.

Bee Notes.—*By M. Quinby.*

Apiary for February.—Care of Stock.—As a general rule, disturb the bees as little as possible. Raise hives that are out-doors, when a warm day has loosened them, and sweep out the accumulations of dead bees and fragments of comb. Danger from protracted cold is not over. See directions last month. Move such as are to have their locations changed before they mark their present places in the spring, otherwise the bees will return to the old spot and be lost. Give four or even six feet between the hives unless crowded for room. Hives painted of different colors—light colors are best, because cooler—and standing with the alternate ones advanced a foot, will be found serviceable when they must be placed closer than four feet. Let each have its own stand rather than put all on a plank in common; then working at one hive will not disturb all. Be careful to shade the bees after light snows, if the sun comes out bright. A bee-house may now be set up, but I do not think them profitable. They crowd the hives too much. True, you may make artificial swarms, or furnish fertile queens two or three days after natural swarming, but this would hardly balance the disadvantages. As this matter of rearing queens both for the purpose just indicated and for changing native swarms to Italian, is of considerable importance, I will give a practical method.

Rearing Queens.—Premising that you use the movable frame, make a number of small frames, as near four or five inches square as may be, to just fit inside one of your large ones. Fill with clean worker comb—that which has been frozen is the best, because the eggs of the moth will have been thus destroyed—and put the large frame containing these small ones in the middle of some stock with a fertile queen from which you wish to breed. Provide also some small boxes on the plan of a simple movable frame hive, with loose top and rabbeting for the frames, and just the size to accommodate three or four of them. When eggs have been deposited in the combs, set up one of your small boxes with them as a hive in miniature, and confine in it between a pint and quart of bees. They will immediately construct queen-cells, and may then be opened. In this way any number of queens may be provided.

Buying Bees.—The present month is a good time to buy and move bees that are standing out-doors. Sleighing furnishes good transportation. Look out for sufficient honey, and plenty of bees, and be careful that there is no "foul brood,"—bees ought to be seen in at least five layers between the combs. Stop the holes in the top and side of the hive, turn it and cover the open end with muslin or wire-cloth, fastening with carpet tacks. If more than twenty-four hours on the road, something stronger than muslin will be required. Bees ought not to be moved from a cellar or warm room without allowing them to fly for a day in fair weather. If housed, bees are uneasy and begin to spot the combs very much,—set them out for a few hours the first opportunity.

Preparing for Spring.—See that everything is ready for the coming year; hives, boxes, covers, stands, and roofs, are to be made and properly stored. In a little while spring will open and a crowd of other matter will demand attention. Not least among the items to be remembered now is some attention to the

Study of the Subject.—However much you may despise the nonsense found in a good deal that is written upon bee culture, still, there is hardly a thing printed on the subject which a man really interested and in earnest can afford to let go unread. It is rare, indeed, to find a writer uttering such unmixed stupidity as not to give at least some profitable suggestion, while by ignoring the whole for the fault of some, you condemn yourself to a place fifty years behind the times. One of the most profitable books to study is Langstroth's "Hive and Honey Bee," but I would advise a bee keeper to read not only this but all he can find from Huber down; to *test* what he reads by his own observation, and learn how much folly and wisdom can come from the same month. In this way we are made teachable and critical at the same time. Now if this work is to be done, let it be in these days of short sunshine and long leisure. It is brain work that leads the world, and if ever our specialty is to command the respect and attention it deserves, it rests with its advocates not only to exhibit its merits in successful practice, but to urge its claims with clear, well-informed heads. And more than that, if your vision extends no further than your own pocket, be assured that the hand with which, if at all, it must be filled, will blunder if not directed by a disciplined power of thinking.

In-and-in Breeding.—An inquirer asks, "If it is not well to introduce strange colonies of bees into the apiary and thus escape breeding in-and-in."——I am not aware that any course of vigorous experimenting was ever undertaken to test this point, but facts as well as analogy, certainly favor it. It is so generally true of other animals that it can hardly fail to be so of the honey bee. The prominent instance we have—the cross between the native and the Italian, is clearly in favor of the principle. The hybrids thus produced possess superior qualities in a marked degree. I am persuaded that this hybrid will prove more active, hardy and industrious, and more inclined and better fitted to defend itself than either of the races it springs from. As to crosses between stocks with differences less strongly marked, although results are less striking, yet they point, I think, in the same direction. I have known several instances where small apiaries kept at a distance from all other bees for a number of years, have gradually "run out," exhibiting no sufficient cause for their decay. It may have been no other than in-and-in breeding. But if there were no other reason for frequent crossing than the general law, I should strongly recommend it for that. Of course, where no foreign blood is introduced, whatever weaknesses or defects exist in your stock must go on intensifying until its constitution fails.

Do the Workers ever Sting the Drones?—When honey becomes scarce in the latter part of the season, the drones are commonly destroyed; sometimes by crowding or dragging them out of the hive and sometimes by stinging, but neither exclusively or at the same time. But there are certainly occasions when the workers do sting the drones. If a number of the latter were put in a strange hive at night—the hive having a fertile queen—there would be none left in the morning.

Ogden Farm Papers—No. 2.

I have seen enough during the two years of my occupation to convince me that, of all the manures I can get, that which is the surest to produce a good effect on my land is that taken from the cellar of my own barn—where it has never had a ray of sunlight nor a drop of rain to lessen its value. For instance, the strongest manure that is to be purchased in this neighborhood is "Fish Guano," the refuse of the fish-oil works. It contains all of the fish except its oil and its water, (both of which are of no value for manure,) and from its odor and appearance, it is evidently a very strong ammoniacal fertilizer. I have never known it to be used without producing decidedly good results. Last summer I prepared four acres for winter rye. One-half of the piece had not been manured since I took possession of the farm. On this I spread fish guano at the rate of two tons ($36) to the acre. The other half had been well manured in the spring, from the barn-cellar, and had produced a strong growth of corn fodder. The seeding and other treatment was precisely alike on both parts, yet, in earliness of sprouting, in rapidity of growth, and in ability to bear severe changes of the weather, the part manured from the barn is very much better than the other.

The most important question for me to consider is, therefore,—How can I most cheaply fill my barn-cellar?—for, in filling that, I shall be accumulating a "working capital" for future operations. As but little is sold from the farm besides butter and pork, the nutritive elements of the manure will not be lost—as they would be in selling hay and grain. A cord of manure is spread in April; by August the corn fodder that it has produced has been consumed in the stable, and a second (and larger) amount of manure is carted out for winter rye, or for the top-dressing of grass land. By the middle of the following June the rye has been eaten, and the manure made has been again spread upon the land. The manure helps to make the growth, but it *only* helps. The natural fertility

of the land, and the contributions of the atmosphere does much of the work, and each time the manure is applied to the ground it produces larger crops, and these crops produce in their turn more manure, so that we go on with a constantly increasing proportion, and the more frequently we can apply the manure, (and apply it to rapidly growing crops, which are at once consumed,) the more rapidly we can *turn our capital* (making a profit each time) and the faster will our substance grow.

This reasoning points very clearly to the "soiling" of the farm stock—of which, more hereafter—because the most luxuriant vegetation may be grown, and be economically consumed within a short time. Instead of spreading manure over the whole of a pasture field—getting its effect slowly throughout the whole season—we apply it all to a small area, produce abundant crops, feed these out as soon as grown, and return the manure they make at once to the land. In this way it is possible to use the same fertilizing elements twice in a single year. Of course this may happen in pasturing, but not so regularly.

If the production of home-made manure is of vital importance to the success of a farmer, it is of great consequence to him to produce this cheaply, to store it safely, and to apply it economically. These questions all had much consideration in making the original plans for the management of Ogden Farm. According to the recognized value of stable manure in this locality, the solid and liquid excrement of a good common cow, if kept under cover—the cow being fed in the stall the year through,—must be worth $50 a year; and this, added to the value of her milk (say 2,500 quarts, at 5 cents), would make $175, which would more than pay for the cost of food and attendance. Consequently, if a thorough-bred cow, of any race, could be substituted for common cows, so that the calves would have a value, the fertilizing of the farm by the consumption of purchased food would be attended with a profit. This point being settled, the next was to decide on the kind of cows to keep. Should it be Shorthorns for beef, Ayrshires for milk, or Jerseys for butter? The Ayrshires were the first dropped from the list, because, in keeping them, I should have been obliged to run a milk wagon to the city at least once a day, and I might not find a constant market, at full prices, for my whole production, in a place which nearly doubles its population during three months of the year. I was sorry to give them up, for they are handsome animals, and abundant milkers. Shorthorns had the attraction of the possibility of getting high prices for the increase. Mr. Sheldon's sales of American animals in England, at fabulous prices, and the $3,000 a friend had just paid for a yearling bull, made me wonder how it would seem if Ogden Farm and its herd should ever get the reputation that brings such prices; but the temptation had a streak of the gambling element in it. *If* the large prices were realized, it would be smooth sailing, but if the carcasses had to be sold for beef prices, and the cows proved not to be of "milking families," it would be up-hill work to build up a herd of these heavy weights. They would probably be less valuable for milk than the Ayrshires, and New England is not the country to make beef in. I settled on the Jerseys for the following reasons:

1. They are, essentially, *butter* cows. I believe they will make more butter from a given amount of food than any other breed, and I know that the butter is better. It "comes" sooner, requires less working, is less likely to fail in quality from mismanagement in working, and has a much better texture and color than the butter of any other cow. This "reason" is important to all farmers who make butter.

2. I have a good market the year round for good butter, and a "fancy" market from May until October; and, by the help of the express companies, I can follow my customers to their city homes. This argument was a convincing one in my particular case, and its force has been shown by the fact that I receive for my whole production 75 cents in summer, and (after deducting expressage) 65 cents in winter. How good it would be for other farmers, must depend on their ability to deliver their butter to customers who are willing to pay an extra price for extra quality; but it applies more widely than would at first be thought.

3. "Alderney" veal is in demand in Newport in the summer at an extra price, which helps out the disposition of surplus bull calves.

4. The Jerseys are growing in favor as farm cows as well as for family use, and it is safe to count on an extra price of from $50 to $100, or more, for heifer calves.

5. From their long *habit of confinement*—having been for centuries either tied in the stall or tethered in the field, from infancy to old age, and having learned to thrive under the treatment—they are exactly adapted for *soiling* in comparatively limited quarters.

As cows, for butter only, they would pay better than any others, and butter would always be sure of a fair market. To offset their high cost (for it does cost frightfully to fill a dozen stalls with Herd-book Jerseys), I had the chance of a good sale for progeny, also at high prices, and the certainty of a fancy price for butter. So, viewed from every side, the Jerseys are adopted, and I have had every reason to be satisfied with my decision. But it is not to be forgotten that *manure*, and not fancy stock, was the point aimed at. The Jerseys, beautiful animals though they be, are, in the case of Ogden Farm, only a means of fertility. Everything else is incidental to their duty of conveying a large amount of food into the barn-cellar, retaining enough, as it goes, in the form of butter and calves, to pay expenses. The object being *rich land*, as the foundation of all riches, the ability to produce the *largest possible* crops takes the precedence of all else; and if, while the land is being made rich, the cows will barely pay running expenses, the operation will prove a success; of course the chances are that they will do much more than this; and when the farm is able to carry a full stock without buying food, the income will be as large from these cows as it could be from any other form of farm industry by which the condition of the farm could be maintained.

If I had only known early in the autumn that good hay could be bought this winter for $16 per ton! I would have bought a hundred steers, putting up rough sheds to keep them in, and would have cut and steamed (for them and my present stock) 300 tons during the winter, depositing this quantity of hay in my agricultural bank, to be drawn out at a future day at $25, or to be kept on hand as active capital. But then what glorious business farming would be if we could always know how prices would range three months ahead!

I am cutting and steaming about three tons a week now, and I am able to give an *opinion* as to the result, but no definite figures as yet. My apparatus includes a very neat and simple stationary engine, of the Norwalk pattern, (which is managed by a corner of my own eye, and the whole soul of Hinderck, my imported German apprentice, aged fifteen years, of whom the readers of the *Agriculturist* will know better things as he grows older,) a tubular boiler that is just a little too big for its work,—as all steam boilers should be,—a Cummings' Cutter, and (for the present) a steaming chest, with a capacity of only 56 cubic feet.

We cut a week's supply of hay in three hours, and while that work is going on, the whole labor force of the farm is kept on the jump. It is done so quickly that it seems hardly worth while to keep a steam-engine to do it, until we recall the straining, and dragging, and interruptions of our last winter horse-power work, and consider how vastly better, as well as more quickly, the work is now done. We are using, now, about equal parts of two-year-old-hay, which was not very good when it was new, and has not improved in the stack since then, and "cured" oats, cut green, cured in the rain and fog, and both mow-burnt and mouldy. It is altogether an unsavory, smoky lot, and would ordinarily be used for bedding. With this we cut a little corn fodder, the whole being chopped very short, and thoroughly mixed in the operation. Twelve bushels of this chop are thoroughly wetted in a trough, and mixed with ten quarts of wheat bran. Thirteen such troughfuls are packed into the steaming chest, the cover is keyed down, and the steam is turned on at a pressure anywhere from 10 lbs. to 60 lbs. to the square inch, according to the accumulation in the boiler. At the higher pressure, the whole mass is heated up, and *hot* steam forces its way out under the cover of the chest within ten or twelve minutes. With the lower pressure, half an hour or more is required. *Whenever hot steam escapes* (scalding hot), *the whole mass is heated up and will cook itself*, (on the principle of the Norwegian cooking apparatus.) The chest being interlined with sawdust, the heat is retained, and accomplishes its work. Until the whole mass is heated up, the steam will be greatly cooled off. Steam at 60 lbs. pressure must raise the hay to a temperature considerably above that of boiling water. There is no danger of bursting the box, as a very slight leak is sufficient to relieve it, but I am disposed to think that a woolen blanket over the upper opening would be as effective as a stouter cover, if it is close enough to prevent too rapid cooling off.

Almost as soon as the steam is turned on, an odor, as of baked bread, or roasted bran, fills the room, and this odor is, of course, diffused throughout the cut feed, making it palatable. If possible, we keep the chest closed from night until morning,—always for two hours after the steam is turned off. If not opened for even thirty-six hours, the whole contents will be found scalding hot.

And now for the result. I have fed in this way, since about the first of December, all of my mules, horses, colts, oxen, cows, and calves—equal to forty head, full grown. I never saw the best hay eaten up so clean, and I never saw a more thrifty lot of stock. They never get anything else (save grain to the horses) at any time through the day, and if they are not overfed, the only thing left is the *joint* bits of the corn-stalks. Mould and mow-burning are entirely overcome, and I believe that the woody fibre of the old hay, which could not be digest-

ed, if raw, is made, to a large degree, digestable.

As to the *quantity* eaten, I am not yet able to speak, but when I get my new 425 cubic feet steaming closet ready,—at the side of my Fairbanks' scale,—I shall be able to report the actual number of pounds consumed per week, which, with an inventory of the live-stock, will enable any farmer to judge whether I am saving more or less than the 33 per cent that the advocates of steaming claim as the economy of the system. All that I absolutely *know* about it is, that my stock like the food, and flourish on it, and that my manure heap was never so uniform in quality before. There has not been a case of scouring, nor one of tendency to constipation since I commenced steaming. The only verdict I can now give is, that steaming is entirely and easily *practicable*, — whether it is *practical* (whether it pays, that is), our friend, Fairbanks, shall decide for us during the coming month.

Horse Papers for Farmers.—No. 2.

BY A SPECIAL CONTRIBUTOR.

One lucky farmer in a thousand may be able, by good fortune, to buy just such a horse as I would have him own. The other nine hundred and ninety-nine will have to begin at the beginning and breed him; and they should understand at the outset that there is a wrong way to set about it—many wrong ways, and only one right way. It won't do to buy a defective old mare (wind-broken, sprained, blind of one eye, clam-footed, or club-legged,) because she is cheap, and think that she is good to breed from because she is good for nothing else. From such a start no good end can be reached. A good thorough-bred stallion would, no doubt, get from such an animal a colt vastly better than herself, but sooner or later her constitutional defects would be sure to show themselves in the progeny, and half the advantage of the sire would be lost. As a rule, the colt will take his size and constitutional defects from the mare—his spirit and wiry strength from the horse. Hence we see many high-bred, spirited, and intelligent horses hobbling about the country, with the weaknesses of their ill-chosen dams suppressing their usefulness. With sound and healthy mothers, these horses might have been the very best farm horses in the land —as it is, they sometimes turn out among the worst, their extra energy and "blood" having only served to wear out their delicate lungs or limbs. Nor can such inferior be depended on to produce valuable horses with any stallion—if not with the best, surely not with anything less than the best.

It takes fully five years to breed and raise a horse for use, and this fact alone makes it imperative to use every care to make the final result worth the time and money expended.

The mare need not be a beauty, and need not be fast, but she should be roomy in the barrel, wide in the hips, have plenty of lung room, and good bone—not so much a large frame as a firm one. Bony excrescences, and fatty puffings on the legs should be especially avoided. She may be as large as you please, and had better be a good feeder and a stout worker. Of course all improvements on this type—in the way of fine head, bright eyes, thin ears, silky mane and tail, sloping shoulders, high withers, prominent muscle, and broad, flat, "clean" lower legs, big windpipe, and large nostrils, and thin hide and swelling veins, will be well worth seeking, and worth paying an extra price for, as they indicate an infusion of thorough blood, which is an advance in the direction we are working for. But these manifest advantages should not blind us to the great essentials of *a sound constitution and a good frame.* At the same time, there are many defects which cheapen the price of the mare without lessening her value for breeding. If she has had an eye put out by accident (provided the other has not shown a constitutional weakness by going blind in sympathy with it), if she has become knee-sprung from abuse, (not from natural weakness) or has even had a leg broken and reset, her value for breeding may be in no wise impaired. It will usually be cheaper, however, to buy an animal that is able to do good service, and earn her living while she is breeding. To sum up the case in a few words, —If the mare is of good form, is in good bodily health, and is free from *constitutional* defects, she will do to breed from. Defects resulting from accidental causes may be overlooked unless they are a source of present irritation. Defects that have been inherited are quite likely to be transmitted; and those which are still attended by febrile symptoms, and may occasion pain in the part during the period of pregnancy, are hardly less likely to produce a tendency to weakness in the corresponding organ of the young. The mare should not be served by the horse while she is suffering from soreness of any muscle or bone, or of the feet; and she should be so used during pregnancy, that causes of local pain should be avoided. I incline to the opinion that a tender-footed mare, if kept in a soft pasture, or in a stable with a soft clay floor, and never allowed to hurt her feet so that her attention will be called to their defects during her whole pregnancy, may produce a colt with perfectly sound feet. This, however, is only an opinion, and is as unsupported by positive evidence as are most of our ideas of reproduction.

I have assumed that the mare is to be purchased. If she is already owned on the farm, so much will be saved. In either case she should, before meeting the horse, be brought to the most perfect state of health that she is capable of—having enough (but not too severe) work, generous (but not too high) feeding, and thorough grooming. Her bowels should be kept free, and her kidneys active. When she is in the best possible condition for work, and not until then, is she fit for breeding.

So much for the mother of our new horse. Much might be written on the subject, but this is all there is room for here. Those who desire more definite information, as all farmers should, must go to the volumes for it.

Whatever the dam is to be,—whether she comes up to my modest description or not,—*the sire should be invariably of pure blood.* This restricts us, in this country, to the Arab, the Percheron, or Norman, and the Thorough-bred (the English race-horse). I know that I am flying in the face of the Great American Idea, and that letters will be sent to the *Agriculturist* office, asking why I have not included the thorough-bred Morgan, and the famous 2.20 trotters; and I can only meet the issue squarely, and say that the thorough-bred Morgan is a thorough-bred mongrel, and that the fast trotter is an effect, not a cause. The experience of the world—with every class of domestic animals—points directly to the law, that *no certain improvement can be made unless the sire is of pure blood.* My mongrel chickens are superb, but they are from a pure Dorking cock; and my half-bred pigs are very fine, because they are from a pure boar. In like manner may we go over the whole range of farm stock, and see how indispensable it is that the *sire* must be *thorough-bred* if sure results are to be attained.

I am not now considering the breeding of fast trotting horses, but of farm horses—horses of all work. Those who breed trotters have but one aim. They care neither for size, form, fineness, nor constitution, save as these help to spin the wheels of their spider-wagons; consequently they are not tending to the establishment of a fixed type. The Arab, the Norman, and the Race-horse *are* fixed types, of long standing, and with the same power to transmit their characteristics to their offspring that the Herd-Book Shorthorn or Jersey bull have—that is, a power, when coupled with a low bred animal, of impressing its own character on the progeny, and nearly obliterating the character of the dam. A good common mare may or may not have a good colt by a trotting stallion. By a stallion of pure blood she almost invariably will have one strongly marked with the excellences of the pure stock. The underlying principle is thus stated by Stonehenge. "Like produces like, *or the likeness of some ancestor.* The trotting stallion's colt may resemble his dunghill grand-mother. The pure-blooded stallion has had no plebian ancestors; the colt may resemble any of them, and still be good."

The excellences of the Arab and Norman horses are such as to make it wise to breed to a pure stallion of either race; but they are so much less common in this country than the "Thorough-bred" that, as a rule, they are not available to farmers.

Of the Thorough-breds Herbert says: "Of course it is better that the sire, when it is possible, should be of a racing stock that is famous for courage and stoutness, such as any of the stock which trace remotely to Herod, Cade, Regulus, Eclipse, or others of known fame; but thus far it is not essential, or a *sine qua non*, since every blood horse, even if, as Sir John Fenwick said, in the reign of Charles II., he be the meanest hack that ever came out of Barbary, is so infinitely superior, in stoutness and quality, both of bone and sinew, as well as blood, to the best cold-blooded mare that ever went on a shodden hoof,—that he cannot fail to improve her stock, whatever may be his comparative standing among racers. All, therefore, that the breeder has to do in this instance, (raising work horses) is to satisfy himself that the horse is *really thorough-bred.*"

This is not, perhaps, quite all, for some—not many—thorough-breds are vicious, and some have defective feet, or a tendency to go blind—and in these modern times the stock is being permanently injured by the growing custom of short races for very young animals, which results in a weedy, leggy character, that it would not be well to introduce among working horses, though, even then, *blood will tell.*

The best—the very best—sire, is a sound and good-tempered thorough-bred, of the class known as "four-milers,"—that is, horses able to run, within a couple of hours, three heats, of four miles each, at an average rate of, say 1 min. 55 sec. to the mile, carrying 130 to 140 lbs. weight. A horse that has retired safely from the turf after such a career as this, is a treasure to farmers which, in this country, does not always offer. There are probably a dozen or twenty such thorough-breds now standing in the United States, besides many more not much inferior to them. And if any well-to-do farmer really wants to raise an invaluable horse for his own use, it will pay, even at considerable outlay, to send a good mare a long distance in search of one of them.

The Crested Turkey.

Among all domesticated poultry and other birds, so far as we know, except, perhaps, Guinea fowls, geese and swans, we find either natural crests, or a tendency of the feathers about the head to assume extraordinary shapes. Among doves we have frills, hoods, and crests; among fowls, turban-like crests, and mufflers about the throat; among canaries, frills and crests. Peafowls have peculiar crest feathers. Pheasants, beautiful and diverse crests. There is a crested breed of common ducks, and beautiful natural crests upon several wild species. Among the various genera of wild gallinaceous fowls are found beautiful crests of very different forms. The Curassow, for example, a bird of South America, nearly as large as the turkey, has a superb narrow crest, capable of being spread like a fan, with its edge to the front, and depressed, or folded, in like manner. So it does not seem an extraordinary freak of Nature that a turkey should occur with a crest, especially when we consider the varying circumstances under which our domestic turkeys are raised.

In the number of the London *Field* for July 17th, a gobbler was figured, having a crest much like the one represented in the engraving here given. The accompanying memoranda by Mr. W. B. Tegetmeier, gave a brief sketch of other reported crested turkeys. It seems certain that they have repeatedly occurred, and have received so much attention from poultry fanciers as to have become at different times, more or less established as a breed, but now they are, and for many years have been, altogether lost.

The specimen represented in the *Field*, and in possession of Mr. Tegetmeier, was said to have come from Zanzibar, and to have been sent to a Hamburgh dealer in Zoological specimens, by a collector in Africa. It is of the common species native to this country. How it should have occurred in Africa, is strange. Knowing, as we do, the very imperfect knowledge of natural history which zoological dealers usually possess, and the lack of accuracy which characterises their statements concerning their animals, even when truth would serve their purposes better than fiction, we respectfully don't believe a word of its having come from Africa.

Almost simultaneously with the appearance of this interesting bird in the yard of Mr. Tegetmeier, one is found in this country which closely resembles the other in many respects. We noticed it as shown at the exhibition of the Connecticut State Poultry Society, and again at that of the New York State Poultry Society, and as having been purchased by Mr. D. E. Gavit, in whose possession it still remains.

The cock is a medium-sized one, weighing perhaps 18 or 20 pounds; of a blackish bronze color upon the body, fading into gray below, and into brilliant light chestnut bronze on the tail and wing feathers, these being edged with broad bands of black and white. The legs are dark, flesh color; the spurs indicating at least a $1\frac{1}{2}$-year-old bird. The carunculations upon the neck, and the beard, are well developed. The crest is like the Hamburgh bird, "of a dull, uniform gray, the feathers composing it being soft in texture." It is a beautiful appendage, adding a peculiar grace to the bird. It is in a measure erectile at the will of the wearer, and gives the gay fellow quite the air of a Broadway belle, with her extraordinary *chignon*.

CRESTED TURKEY—"VICTOR EMANUEL."

We hope this notice may elicit some positive information from disinterested parties who know by whom and where this bird was bred. From all we can learn, he came from somewhere near Birmingham, Connecticut. The parties who sold him to Mr. Gavit are not disposed to be communicative in regard to his origin. If he lives he will be bred with care, and we hope and expect his progeny, some of them at least, will take after him in this beautiful peculiarity.

Sheep Require Water in Winter.

That sheep will eat snow and get along tolerably well without water, especially when the snow is light and clean, is a good argument in favor of the hardiness of these patient and useful animals; but it proves nothing in regard to the economy of compelling them to do without water. In our cold climate a large amount of food is required to keep up the animal heat, and all the water a sheep drinks has to be raised to the temperature of the body. The heat required for this purpose is derived from the food. Now, it requires twenty-one times as much heat to raise a pint of water when frozen, to the temperature of 40°, as it does a pint of ice-cold water, not frozen. Those who have ever undertaken to melt snow to wash with will readily believe this statement. What would be said of the farmer who should use wood or coal for such a purpose when it could be avoided, and yet wood and coal are far cheaper sources of heat than hay or corn. When we compel a sheep to eat snow, we, in effect, undertake to melt snow by burning straw, hay, and corn in the animal stove. The same remarks will apply to feeding animals on frozen roots. A sheep, weighing say 100 lbs., will eat, in addition to a liberal allowance of hay and grain, 10 lbs. of roots a day, containing nearly or quite 9 lbs. of water. Now, before the carbon in the turnips can produce fat, or furnish material to keep up the heat of the body, it must first raise this frozen water to blood heat. A flock of a hundred sheep will drink nearly two barrels of water a day, and there are few things more important to the economical and successful wintering of sheep than to see that they are constantly or at least frequently and regularly supplied with water. A running stream, brought by pipes into the barn-yard, is doubtless the best, but when this cannot be obtained, the water should be pumped up fresh for the sheep; and not allowed to stand until frozen, and then the surface broken and the ice left to float in the water that the sheep have to drink. We do not know that it would pay to heat water for sheep, but certainly it will not pay to make them eat snow, or drink water with melting ice in it.

Where early lambs are raised, it is important to provide the ewes with a constant supply of fresh water. If from accident or neglect such sheep have been kept without water for a day or two, nothing is more dangerous than to permit them to drink their fill of cold water. We once lost several sheep from this cause, and have since heard of many similar instances. Take the chill off the water and no danger need be apprehended. Suckling ewes require more water than other sheep, and when roots are not fed, it would undoubtedly contribute much to obtaining a good supply of milk for the lambs if the ewes were furnished with warm water, or, better still, warm, cooked food, such as oatmeal and bran mash, or boiled barley, etc.

Walks and Talks on the Farm—No. 74.

The winter months bring me a good many letters asking advice, and giving useful suggestions. I am always glad to receive them. One man gives me his views on the financial problem. He wants more greenbacks. So do I. But I do not feel certain that, if more are issued, any of them will find their way to my pocket. I think he and I have a better chance to make money from attending to our farms than by looking for aid from Washington. Another farmer writes: "Your 'Walks and Talks' are all good, but No. 72 is ahead of anything yet. After reading them I could return to specie payments or withstand a financial crash, and still have *pluck* left. Your remarks did me good, as I am rather deficient in pluck, but am improving by the example of one of the pluckiest of wives."—There are many other farmers who can say the same thing. Nine out of ten owe their success to their wives. The same man says—"I commenced to farm because I had a love for it. I love it still, but would love it still better if I could make more money by it. * * I follow mixed husbandry, and try to do everything well—hire more help than my neighbors, and my farm shows quite a difference. Have more tools, and read more papers than any farmer in town—had rather lend than borrow. Usually board a boy to do chores, but this winter I do them myself, with the help of my eight-year-old son, who takes as much interest in them as any farmer. I always sleep better when *I know* that every animal I own is comfortable. I wish every farmer in America could say the same. It would add millions to our wealth. Have not sold my grain. I had concluded, before reading your remarks on the subject, to convert it into beef, butter, and pork. Pigs are very scarce. I am wintering four sows, and expect to raise pigs from them all. Have bought a thorough-bred Essex to cross with my Chester Whites. I think it will pay. I let them run out in the yard. Pork is bringing 15c. to 16c. per lb. I had some good pigs, but not heavy. They averaged 226 lbs. at eight months old, and thicker pork I never saw."—His grade Essex will do better than that, if he will feed them well until they are three months old, and then let them have the run of a good clover pasture, and a pint or two of corn a day, with the milk and wash from the house.

Here is a letter from a city man, who writes: "Though not a farmer, I am a lover of farming, but am prejudiced against farm life, because it seems to me that living on and working a farm is unfavorable to the development of the intellectual part of our nature." What nonsense! "In town," he continues, "one is thrown in contact with one's own kind, and through the Library and Reading-room, can keep up an acquaintance with the current literature and the history of one's own times, while a farmer could not afford to *buy* all the good periodicals and books." In conclusion, he thinks that "living in a village or town is more favorable to the cultivation of the *thinking* powers than living on a farm."—If he had said the "talking" powers, he would have been nearer the truth. The "current literature of the day" is not the kind of food I should prescribe for strengthening a weak intellect. The *study* of "How Crops Grow" will do more for the "thinking powers" than reading a whole circulating library of light literature. The young farmer who carefully reads Allen's American Farm Book, with a view to practice what he finds applicable to his circumstances, will find more to *think* about than a whole regiment of dry goods clerks can extract from the sale of calico and ribbons. The truth is, however, that a city youth may know more than a farmer's boy, or a farmer's boy more than a city youth. It depends on how they use their time. Both have opportunities for study and improvement, and it will depend entirely on themselves whether they become intelligent men or stupid dolts. As a rule, an intelligent farmer becomes more of a man than an intelligent shopkeeper; on the other hand, a stupid farmer is more stupid than a frivolous city clerk.

Here is another letter, from a man who owns twenty-three acres of poor, undulating, clay loam land, situated less than two miles from the centre of the City of Memphis. He proposes to move on to it, and intends to devote six acres to small fruits, asparagus, celery, and cabbage; the remainder to be planted in corn, potatoes, etc. He wants me to tell him how he can best break it up, enrich it, etc. Stable manure can be had, in large quantities, for ten cents a load.—I would first thoroughly underdrain the land, and, at the same time, draw out a hundred loads of stable manure per acre, and plow it under. Keep the surface mellow and clean by the use of the harrow and cultivator. Then, in the course of a month or six weeks, cross-plow the land. The manure may not be sufficiently rotted to allow neat work, but no matter. Keep working the land, and during the hot weather the manure will decompose very rapidly, and will be thoroughly incorporated with the soil. This will be one great point gained. Another is, that the soil will become very loose and mellow, and if the work is done properly, millions of weeds will spring up after each plowing, and will be destroyed. In short, what I would do in such a case, would be to give up all idea of planting anything the first year, and bend all my energies to getting the land into first-rate condition. With manure at ten cents a load, I would make the land as rich as a hot-bed. Of course I have no idea that my friend will follow this advice. He will be anxious to get the land into crop this spring. With the exception of asparagus and corn, however, he would certainly make more by devoting one year to draining and preparing the land. Twenty acres of land on the borders of a large city, prepared as I have recommended, would make any skillful gardener's fortune. And I would devote every dollar I could spare to drawing out manure while it is worth only ten cents a load. In a few years it will be hard to get at a dollar a load.

Here is another letter, from a young Pennsylvania farmer, who says he "is full of enthusiasm in his vocation, and willing to learn, and believes in thorough cultivation and superthorough manuring."—This is an excellent ground-work for success. He has large quantities of old timber on the farm that is rotting and going to waste, and he wants to know how to make it into ashes, so as to secure the greatest quantity and the best quality. By simply burning the wood he thinks the ashes are burnt up, and a good portion of them lost. This, I think, is a mistake. The value of ashes consists principally of the potash and phosphate they contain, and these are not lost by burning. If the wood cannot be turned to any good account as fuel, I would draw it into piles and set fire to it, and then spread the ashes on the land. Perhaps this wood may be used for burning limestone in a rough way for manure, or perhaps it may be made into charcoal. If this timber lies on low, wet land, that is rough and weedy, I would first dig a ditch through it to get off the surface water, then remove the old wood and logs out of the way, to allow a team and plow, to get through. After plowing three or four furrows place the wood in heaps on the plowed land, and keep on plowing and removing the wood out of the way of the plow and putting it on the heaps. I cleared up a rough piece of land in this way, and made it smooth and level at one operation. All the tough sods, tussocks, and bunches of rushes, etc., we threw on to the heaps of wood and set fire to them. In this way we got quite a large quantity of charred soil, ashes, charcoal, etc., which was spread on the land. We then seeded it down with timothy, and had a splendid crop of grass on land that previously was simply an eyesore and a nuisance.

A Minister in Canada writes: "Is there any amount of ammonia contained in snow, or absorbed by it, so as to make it a real benefit to the crops? I have heard it stated that a heavy covering of snow is as good as a coat of barn-yard manure. Is it so?"—It is so to a certain, but quite limited extent. Snow contains ammonia and nitric acid, and so does the water from rain, dew, and fogs. There is no satisfactory evidence that, on the average, snow contains more ammonia or nitric acid than rain-water. Boussingault, indeed, found twice as much nitric acid in snow as in rain, but the mass of testimony indicates that the *per centage* of ammonia and nitric acid in rain or snow, depends principally on the quantity of water precipitated. The first shower of rain or snow, after a drouth, contains the highest proportion of ammonia and nitric acid. When we have continuous rains or snows, the quantity of ammonia and nitric acid contained in them becomes less and less. Snow has been called "the poor man's manure," and he will be a poor man who depends upon it. Still, the quantity of nitrogen brought to the surface of the earth in a year is equal, on each acre, to about ten pounds of ammonia, or as much as is contained in a ton of ordinary barn-yard or stable manure. The trouble is that for want of underdraining a large proportion of the water from melting snows and heavy rains, instead of soaking into the soil and leaving its ammonia and nitric acid for the use of plants, runs off on the surface, often doing harm rather than good. My impression is, that a well-worked loamy soil absorbs more ammonia from the atmosphere than is brought to it in snow and rain. At any rate this source of ammonia is worthy of the most attention. The snow descends on the poor land as much as on the good. We cannot increase the supply. But the amount absorbed from the atmosphere by the soil is under our control. The more we pulverize a heavy calcareous loam, the more ammonia will it absorb from the atmosphere; and, at the same time, this thorough working of the land will develop the plant-food lying latent in the soil.

A farmer in Canandaigua wants me to tell my "experience with Essex pigs and their grades." I have kept them several years, and the more I know of them the better I like them. But I would not advise him to buy them in hopes of selling to his neighbors. The Essex, you know, are *black*, and in this section

there is not one farmer in ten who can get rid of his prejudice against color. My pigs have been the laughing-stock of the neighborhood. Mr. Chase and I have bought the Maple-shade flock of thorough-bred Cotswolds, and since they arrived here they have attracted much attention. The Deacon came in one morning and remarked, "Now that you have brought such a magnificent flock of sheep into the neighborhood, we will forgive you for bringing in the black hogs." Now, it is not pleasant to pay $50 for a pair of young pigs and have an intelligent farmer like the Deacon make fun of your purchase. If you wish to be on good terms with your neighbors, buy a Chester White or a Jefferson County pig. You may believe, as I do, that an Essex pig will do more to improve the quality and fattening properties of the pigs in the neighborhood than any other breed; but, if the neighbors wont use him, what is the good? You may tell them that the Essex hogs dress as white or whiter than white pigs, that the color is not even skin deep—that it is only the scarf and hair that are black. But it makes no sort of difference. "I hate a black hog anyway,"—said one of the judges on swine at the State Fair, and ninety-nine farmers out of a hundred would approve the sentiment. "Why, then, do you keep black pigs?"—Simply because I know of no white breed that has been kept so long pure. The value of a breed consists, first, in its possessing the form and qualities we desire; and second, in its power of imparting them to common stock. The latter is the rarest and most valuable quality. A pig that possesses the former without the latter is worth no more than what the butcher will pay for him. The handsomest pigs in my yard today are grades. I showed a pen of five pigs, Essex grade, at the State Fair. Col. Weld, of the *Agriculturist*, when he saw them, remarked, "They are spleudid, but they are not thoroughbred."—"How do you know that?" I asked. "They have every mark of the Essex, and resemble each other as closely as two peas."—"They are too good for thorough-breds,"—he replied, and he was right. This fact, however, is not generally understood, and hence the questions most frequently asked are, "How do you like the Essex, or what do you think of the Berkshires, or the Suffolks, or the Yorkshires?"—whereas the question should be, Which breed *gives the best grades?* And this is simply a question of pedigree. The breed that is the most thoroughly established is the best. The only point that needs to be urged on farmers is not to recommend this or that particular breed, but simply to show them the importance of using *some* kind of thorough-bred male—and this in all cases, whether of horses, cattle, sheep, or pigs. If this simple idea could be driven into the minds of all our farmers, it would add millions to the value of our farm stock. I was in the Buffalo cattle yards a few weeks since. There were several thousand pigs in the pens, and every first-class pig in the yards showed more or less Berkshire or Essex blood. I had an experienced butcher with me, who shares the popular antipathy to black pigs, but he was forced to admit that wherever the Essex or Berkshire blood showed itself, "there was the pig he wanted." A great many of the pigs showed Chester White blood. They were good, strong, thrifty pigs, showing plenty of bone and offal, but the quality would not compare with the Berkshire and Essex grades. They would have made good heavy pork if they had been fatted two or three months longer. A visit to these cattle yards would do a farmer good. The contrast in the different lots of animals as they stood side by side in the pens is most striking; and I could not but ask myself over and over again, "Why will farmers raise, and keep for years, and attempt to fatten such miserable animals?"—A good three-months-old calf sells for more than many of the three-year-old steers. There were two four-year-old Ohio Durham steers that sold for more money than a lot of a dozen "scallawags" of the same age. It is so too in the sheep market. I bought a lot of two hundred Michigan Merinos, three and four years old, for $2.40 each, that the dealer said he had spent considerable time in selecting from different flocks. At the same time I offered $8.60 each for a lot of Canada sheep, of only half the age, but the butchers outbid me. Now, I do not say that everybody should keep the mutton breeds of sheep, but I do say that, no matter what breed is kept, we should keep them well, and be constantly improving them; otherwise there is no profit in farming.

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As long as people will pay as much for light oats as for heavy oats, no one can blame farmers for raising the poorest variety they can find. There can be no doubt that it is easier to raise poor things than good ones. I presume the statements in regard to the large yield of Norway oats are true; and if I intended to raise oats for sale, I would sow the Norway, as it is one of the poorest varieties I am acquainted with. In England and Scotland, where oatmeal is extensively used, the great aim is to get heavy oats, and the price which they will command depends on the quality. For instance, when a bushel of oats, weighing 40 lbs. per bushel, sells for 60 cents, one weighing 41 lbs. brings 62 cents. And every additional pound per bushel adds 2 cents to their market value, while every pound per bushel under 40 lbs. deducts 2 cents from their value. So that a bushel of oats weighing only 25 lbs. would be worth but 30 cents, while a bushel weighing 50 lbs. would be worth 80 cents. Professor S. W. Johnson, in the American Agricultural Annual for 1867, gives the results of Muller's analyses of four samples of oats, the heaviest of which weighed 45.8 lbs. per bushel, and the lightest 28.8 lbs. The latter contained of water, husk, and ash, 31 per cent, and the former not quite 22 per cent, or, in other words, the heavy oats contained over 78 per cent of nutritive matter, and the light oats only 69 per cent. The heavy oats contained 59$^3/_4$ per cent of starch, and the light oats only 51$^1/_2$ per cent. According to this, if a bushel (34 lbs.) of the heavy oats is worth 60 cents, a bushel (34 lbs.) of the light oats is worth only 53 cents. He gives also another experiment in flouring light and heavy rye on a large scale. 100 lbs. of heavy rye gave 10 lbs. more flour and 7 lbs. less bran than the light rye. Millers understand this matter, and will pay, weight for weight, much more for good heavy wheat than for a poor, light sample; but so far as I have observed, the produce dealers make comparatively little difference in the price of oats when sold by weight.

	Varieties of Oats.	*Weight per bushel of seed sown.*	*Yield per acre in bushels of 32 lbs.*	*Weight per bushel, lbs.*	*Prop'n of straw to 100 lbs. of grain.*	*When sown.*	*When harvested.*
1	Excelsior.....	47 lbs	60.6	35$^1/_2$	151	Apl. 29	Aug.
2	Somerset.....	44 "	91.2	31	138	Apl. 29	Aug. 9
3	White Schoneu	40 "	62.3	37$^1/_2$	135	Apl. 29	Aug. 2
4	Black Swedish.	40 "	66.2	30$^1/_2$	187	Apl. 29	Aug. 23
5	P. Edw'ds Isl'd	33$^1/_2$ "	62.2	31$^1/_2$	110	May 1	Aug. 17
6	Brooks'.....	36 "	68.6	31	136	May 1	Aug. 17
7	Norway.....		50.3	28	136	May 11	Aug. 24
8	Surprise.....		38.3	46$^1/_2$	180	May 5	Aug. 4

Dr. Miles made some interesting experiments last year, on the Michigan Agricultural College farm, with eight varieties of oats. The results of which are shown in the table just given.

Nos. 1, 2, 3 and 4 were from seed imported by the Department of Agriculture. It will be seen that the two English varieties, Nos. 1 and 2, fall off nearly 13 lbs. in the weight per bushel. It would be interesting to know how much of this is due to soil, culture and climate, and how much to the want of the thorough use of the fanning-mill. I raised about five bushels of the Excelsior oats last year, and I think by running them two or three times through a good fanning-mill, and then through what they call in England a "heaver,"—that is, a fanning-mill with a strong blast and no sieves,—I could get out a bushel that would weigh as much as the sample received from England. In my case the Excelsior were greatly superior, in yield and quality, to the common oats grown in the same field, sown at the same time, and receiving precisely the same treatment. The straw was stiffer and taller, and throughout the season you could see the difference to a row by the dark color, broad leaves, and more luxuriant growth of the Excelsior. I did not try the Somerset. In the Michigan trial it gave by far the largest yield per acre, but it weighed only 31 lbs. per bushel. The Brooks', we believe, is a Michigan variety. The Surprise was sown in an orchard, and the trees injured the crop, "so that the yield does not fairly represent the value of the variety." The weight per bushel indicates a high quality. The Norway makes a very poor show, both in yield and quality. The seed was received from a firm in New York, and contained a quantity of foul seeds, which were picked out by hand. The oats were not sown until the 11th of May, and this late sowing may have had something to do with the poor result. Our seasons are so short that a week or ten days delay in sowing, not unfrequently makes all the difference between a good and poor crop of oats.

There are so few experiments made in this country, that we have to be very thankful to any one who will furnish us any carefully ascertained facts; but it is to be regretted that the above trial was not made on a larger scale, and that all the plots were not of the same size, and on the same land, and sown at the same time. The Department of Agriculture should furnish our Agricultural Colleges with seed enough to make such experiments entirely satisfactory.

Glass-Covered Run for Early Chickens.

It is a great object with breeders of choice fowls to have a few broods, at least, of very early chickens. If these do well, they will probably be the prize-winners at the fall shows, or they will be ready for use, if for market, as broilers, in May and June, when prices are the highest, or the pullets will be laying from September, or earlier, to Christmas, when eggs are scarce and high. To raise early broods with success, the chickens must have no pullbacks, but a steady healthy growth from first to last. It is easy enough to get the eggs hatched, and to rear the chickens until they are a week old, but then commences a series of trials which few early broods live through in common hands. In June, the old hen, left uncooped, will take care of her brood almost without care from us, and with little feed, and the chicks grow and thrive, but in February and March the case is different. At hatching, the greater part of the yelk of the egg fills the stomach of the chicken, and is gradually absorbed as food,

so that the first day it needs no food, the next day but little, and it is only on the third or fourth day that the little things experience real hunger when deprived of food. This period comes sooner in cold than in warm weather, and quicker, too, if they are not properly brooded. It is absolutely necessary to keep chickens warm and dry. They should have clean coops, and a clean, dry, sunny run. These requisites are very conveniently provided by using hot-bed sashes in the manner shown in the accompanying engraving. Three large

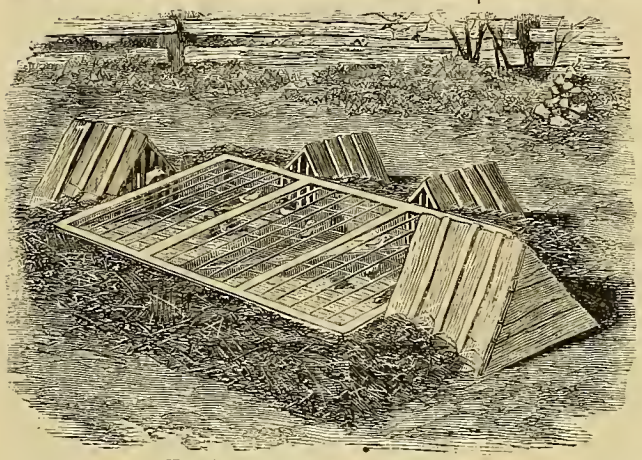


Fig. 1.—CHICKEN-RUN AND COOP.

hot-bed sashes cover a space of about 72 square feet, abundantly sufficient for four clutches. The frame on which the sashes are laid is made of 2 × 3-inch stuff, and supported by stakes driven into the ground at the corners and such other points as may be needed to give firmness, and the frame is nailed through to these posts. The slant given to the sashes need not be more than one foot in the six feet, the rear posts being therefore 18 or 20 inches high, and the front ones 6 or 8. Boards are placed between the coops and at the ends, and earth or litter is banked up and packed firmly against them. If the coops open at the back, it will be found convenient for cleaning them out, and removing the hen if necessary. Ventilation takes place through the openings in the peaks of the coops, which, however, should not be so large that chickens can fly up and get out. The chickens are fed and watered by slipping the sashes up or down, and it might also be convenient to have a pane of glass arranged so as to be removed at each end. A mat should be provided, to give shade in case the place gets too hot, and the sashes may be lifted a little at the upper end, to give freer ventilation. Thus the temperature may be perfectly and easily controlled. We indicate in the engraving two partitions; one crosses the middle of the space, dividing it

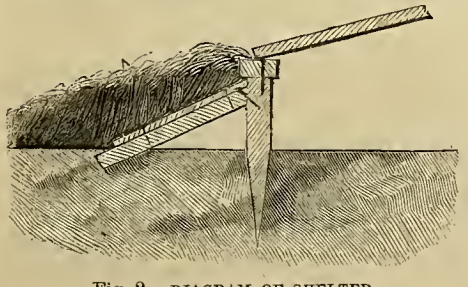


Fig. 2.—DIAGRAM OF SHELTER.

into two equal, square parts; the other divides one of the squares in two equal, triangular parts. This gives the chickens of each coop 18 square feet of space. A warm, shady shelter is easily made by laying a board against the front posts, as shown in the accompanying diagram (fig. 2). This, if covered with warm manure, packed above it, and covered with a layer of earth, will warm through and give a very pleasant place for the chickens to run under in cool weather. When the weather becomes warmer the manure will have lost its heat.

Salt-Muck.—Will it Pay to Dig it?

For shore farmers, who have creeks penetrating their meadows, we have no doubt that salt-muck is one of the cheapest sources of manure. In an analysis made some ten years since by Prof. Johnson of Yale College, it was shown to contain 5.41 per cent. of potential ammonia, standing at the head of all the 33 specimens of peat and muck analyzed for the State Agricultural Society. This sample was taken from a ditch in Stonington, where the tide-water flowed daily, and was probably a fair specimen of what is now found in inexhaustible quantities in the creeks all along our coast. The analysis was made on account of the very noticeable results, which followed its use, both upon grass and corn, in that town. This deposit is made up very largely of decayed marine plants, and the silt brought into the sea from fresh-water streams. River deposits and marine plants are well-known fertilizers. If the kelp and rock weed are so valuable in the fresh state they ought to be still more so when they have been rotted down in the water, and their bulk so much reduced. J. J. Day used it freely upon his meadow at Stonington, and the result was not only remarked upon the corn crop, to which it was applied, but upon the subsequent grain and grass crops. The mud was raised by hand into a scow, and from thence carted upon the land. J. D. Fish, of the same town, has improved upon the method of raising it. He uses a steam derrick rigged like a common mud digger. The mud is dropped from the bucket, immediately into the cart, and is driven off and dumped upon the meadow. After lying a few weeks to dry, the heaps are spread with a shovel. We see no reason why the common mud digger, used to deepen channels, could not be made available for this purpose. It could readily be taken into many of our creeks and the mud be dropped directly into carts, backed a little into the water. It would require of course a good many extra teams, and extra expense for help, but if it is worth only half as much as yard manure, it will pay abundantly. The whole surface dressed with this mud upon Mr. Fish's farm this autumn was a few weeks after its application distinctly marked by the greenness of the aftermath. It is too early of course to tell what the next crop will be, but there is every indication that it will be abundant, and that the muck will pay for digging.

MANURE in a bulky form is less liable to damage; it goes further; is better incorporated with the soil, and it produces more effect than that which is more concentrated.

Clod Crushers.

As a rule, harrows and rollers, used one after the other, are the best clod crushers, but there are many soils which no reasonable amount of rolling and harrowing will bring into good tilth, which a good clod crusher would put in good shape with once going over. Clod crushers for such work, however, like the best rollers, are not home-made articles. The common clod crushers, such as almost any one can make, are, nevertheless, fair substitutes for the roller in subduing land before it is sown with grain, and on some lands may even be used after grain is sown and harrowed. A clod crusher of very simple construction and which can be made in a few minutes is shown in fig. 1, which represents 4 logs, about 10 inches in diameter at the largest end, and eight feet long, fastened together by a chain. This, having quite a large "bight" to hitch to, is run through holes bored about a foot from the ends of each log. The logs are fastened apart by keys put into the links, and should be separated about half their diameters. The keys may be rings or pieces of large wire bent so as not to slip out. Convenient forms are shown in figure 2. They must be made of wire strong enough to stand a heavy strain, so that if the implement runs against a fence, tree or stump, it will not break. The engraving shows sufficient length of chain behind to attach another log if desired. This makes a very good smoothing implement. It may be drawn even,

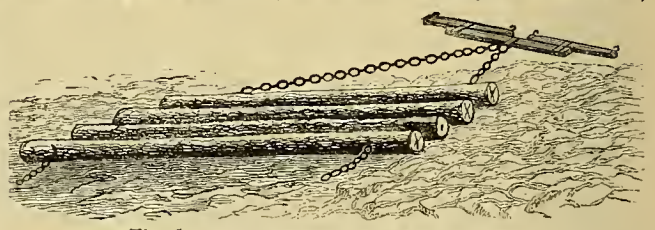


Fig. 1.—CLOD CRUSHER OF CHAINED LOGS.

or the clevis for attaching the horses may be at one side, in which case the earth will be more or less shoved to one side to fill dead furrows, etc. In figure 3, a form of clod crusher is shown which is superior for smoothing

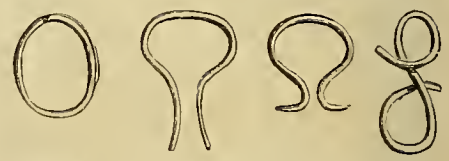


Fig. 2.—WIRE LINKS FOR CLOD CRUSHERS.

rough, irregular land. This also is made of logs about 10 inches in diameter, which are set in a frame, being morticed in, as shown in figure 4. In passing over little knolls and hummocks nearly the whole weight of the affair bears upon

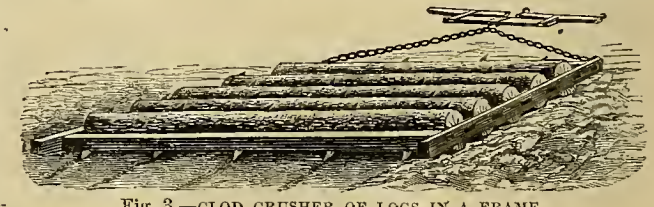


Fig. 3.—CLOD CRUSHER OF LOGS IN A FRAME.

the highest points, and levels them down considerably. This clod crusher may be made either with or without teeth. If employed, they should be inserted at an angle of 45° to the mortice, and may be longer or shorter, according to the work to be done. They should, however, never be long or numerous enough to prevent the logs resting upon the ground. The operation of the teeth is to crowd strawy manure out

of sight if the soil be moderately soft. This implement is drawn by a chain fastened to a clevis on the end of each side beam of the frame. The tool may be reversed by turning it over and hitching to the other end. It is not necessary to sharpen the teeth much; they will wear

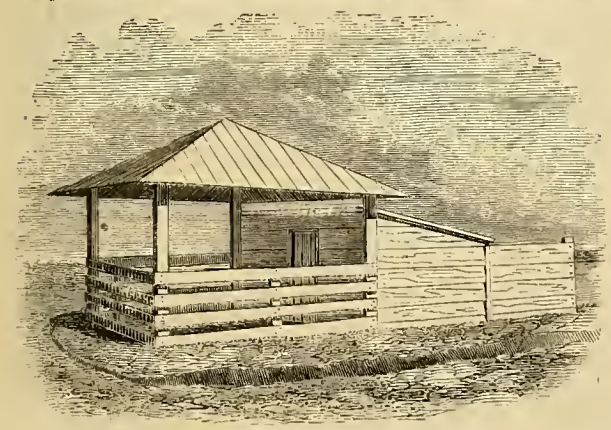
Fig. 4.—SHOWING CONSTRUCTION OF FIG. 3.

rounding very soon. These may be omitted altogether from the rearmost stick, if smooth work not marked by furrows be desired; but in this case the implement could not be so well inverted and used the other side up, for then the smooth log would be at the forward end. The same result is attained by attaching a light log or brush to the back end when in use.

Wet Hog-Yards a Nuisance.

Where hogs are kept on a large scale, say where thirty or forty 300 or 400-pound hogs are fattened every year by one farmer, they are seldom kept in yards, but have the range of an acre or more, with a brook or water-trough, and their manure is made little account of. Farmers who feed fewer swine, and reckon the manure a very important, if not the chief source of profit, confine their hogs, and keep them working over vegetable matter of all kinds. The yards, if not continually supplied with large quantities of fresh litter or weeds, are fitly described by a correspondent of Somerset Co., New Jersey, whose letter we quote as follows:

"Hog-yards, in connection with hog-pens, as most farmers have them, are a nuisance. The hogs root up the bottom of the yard until they get a great hole, and every rain fills it with a slush, into which no one wishes to go to clean out the manure, and it is too offensive to be near the house. My neighbors have tried paving with stone and brick, but the hogs rooted up the pavements. About a year ago, I laid mine



ROOFED HOG-PEN YARD.

with oak plank, on a level with the surface of the ground, so that the water could run off when it rained. The ends of the planks run under the lower boards composing the sides of the yard, so that the hogs cannot root them up; they are not laid on timbers; it is unnecessary. We can now go into our yard and clean out the pen with no more inconvenience than we clean the plank floor of a horse stable. I have no doubt that the reason why farmers make so little manure in their hog-yards is because they are such filthy places to go into, and have no doubt the planks will last in such a situation a lifetime, they being always wet."

This is very well so far as it goes, and it is just about as far as most farmers will go who have to get the manure out of their own hog-pens. We propose a plan for those whose pig-stys are already built, and have the usual inconvenient open yards. It would be best to have the hog-yard sheds open to the south, and accessible to carts at this side. A simple roof, however, something like the hay-barrack roofs of our Dutch neighbors in "Jersey," will answer. A yard 12 or 14 feet square is large enough for half a dozen hogs, and better than if larger. Such an one may be roofed as represented in the engraving. The four corner posts of the yard are 12 feet long, or a little less, and set nearly 3 feet in the ground. There are four rafters mortised upon these posts, meeting in the middle, at a hight to give the desired pitch, and extending 3 feet over the posts, to give wide eaves. Before putting up the rafters, 3 × 4-inch plate-pieces are nailed or pinned near the tops of the posts, all around, and tied by similar pieces mortised into the middle of each side, crossing at right angles. The roof may be of boards, thatch, or shingles, and an old tin roof, taken off from some other building, may be made to turn rain for several years by an occasional coat of some roofing—pitch or paint. A yard so covered will receive rain enough usually to keep it moist; it will not become wet unless water flows into it. Manure will make better and faster than in an open yard; none will be washed away, and little or none will be lost by evaporation, as during the warmest part of the day the yard will be in shade. In dry weather it might need wetting.

Killing Beeves on the Farm.

The slaughter of beeves on the farm is an awkward business at best, unless one has the more essential appliances of a slaughter-house. With plenty of help, and a good pair of blocks and tackle, we can get along very well; but when one man undertakes the job, whether he be on a farm with a roomy barn floor, on one without a building high enough to swing a bullock in, or on the open prairie, with only a tree, or perhaps not even that, he has his hands full. However, the work may be done, and well done, and that without a pulley.—In killing the animal, it is desirable to cut the large blood vessels of the throat as soon after it is struck down as possible, the most rapid bleeding being best for the beef. When it happens on level land that the creature is brought down by the bullet, it is a little difficult to secure the most perfect bleeding, for it is desirable to have the head lie low, and the body incline towards it. This is accomplished by placing the animal on a bank, or by tying a rope to one hind leg, and hoisting the hinder part of the body up as high as is necessary. As this is done before the struggles of the creature are over, the rope should be attached before it is knocked down if possible, or a noose should be made and thrown over the foot afterwards. As soon as dead, the carcass should be skinned. The legs, belly, and pate are skinned as it lies upon its back—most conveniently if ropes can be fastened to each foot, and the legs stretched well apart. This done, the feet are cut off at the knee and hock joints, the paunch is removed, and the carcass strung up. A gambrel is inserted, and with help enough, the beef is easily swung clear of the floor in any common

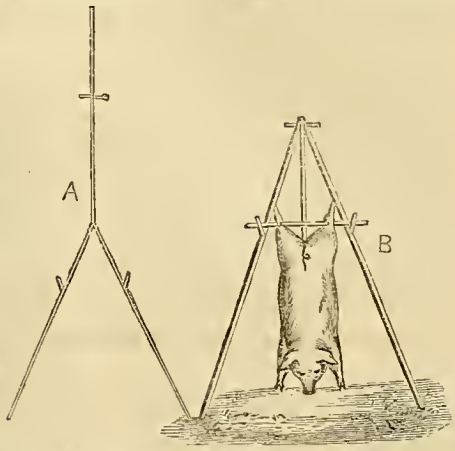


Fig. 1.—TRIPOD FOR HANGING UP HOGS.

barn, or to the limb of a tree, not less than 8 feet high. On the open plain, sometimes a gin is set up, having a block and tackle, and this does very well. We published, some years ago, a plan (see fig. 1) which, while it answers very well for heavy hogs, requires the power of three men to manage it with even a moderate beef animal upon it. This is accomplished as fol-

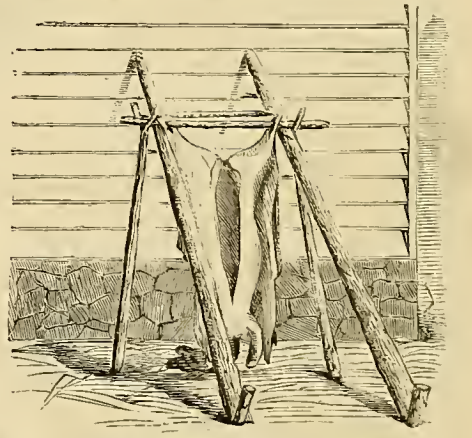


Fig. 2.—SUSPENDING A CARCASS.

lows: Two legs of the tripod, *A*, have pins set in them, upon which the gambrel rests after it is inserted, the tripod lying flat upon the ground, as shown. Then the upper part of the tripod is lifted and the carcass with it a little ways, until the ends of the legs hold in the ground, after which simply carrying up the leg with the pin thrust through it for a handle, elevates the carcass to the desired hight, shown at *B* in the engraving, fig. 1. Mr. S. R. Shegogue having tried this plan, describes for the *Agriculturist* a way by which two men "string up" a good sized bullock. He writes: "Get two strong poles, say 15 feet long each, and place them against a building or tree, as shown in the illustration. Cut four crotched poles and point them at one end; two of these should be 5 feet long, and the other two 7 feet. After killing the

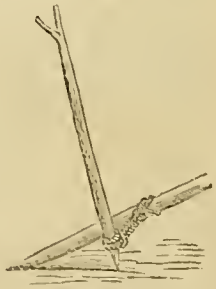


Fig. 3.—LEVER AND SLING.

beef, it is turned on its back, and the legs and as much more as you see fit, are skinned; a long gambrel stick and shorter one are put in place. The long one is laid across the poles, as high up as possible, then the short crotch poles are used,

and the carcass shoved up, one side at a time; then the longer ones are employed until you reach the desired height, leaving the beef suspended as represented. Two men can butcher in this way without much trouble."—When strung up it is comparatively easy to finish skinning, and to remove the vicera, after which the carcass may be allowed to cool, when it can be cut into quarters. A single man will have no difficulty in lifting a beef carcass if he uses a lever and simple sling, as shown in figure 3, to move up the crotched sticks, first on one side and then on the other. The lever being placed at right angles to the long poles.

Care of Young Pigs in Winter.

It seems to be generally admitted that the stock of pigs in the United States is unusually light. At any rate, pork brings a very high price, and this fact, in the face of a tight money market, is pretty conclusive evidence that the supply is not equal to the demand. It is not improbable that farmers will make, or have already made, an unusual effort to raise a large number of pigs next spring, and if we have a good corn crop next year, we may see a marked decline in the pork trade in the winter of 1870–1. But the indications now are that pork will be in demand through the coming summer, and early autumn, and we should make it a point to have our pigs in such high condition that we can avail ourselves of the high prices. Every farmer who has a litter of fall pigs should see to it that they are kept growing rapidly through the present winter, and during next spring and summer. A well-bred fall pig can easily and profitably be made to dress 250 or 300 lbs. at ten months old. But to accomplish this it is absolutely essential that the pigs be provided with comfortable quarters through the winter, and are furnished with a liberal and regular supply of nutritious food. We do not advocate fattening pigs during our northern winters, but we do most earnestly advocate keeping young pigs growing vigorously. So far as our observation extends, half our farmers do little more than keep their young pigs alive during the winter. Whatever food the pigs eat is lost. They do not gain a pound, and they are so stunted that half the summer is past before they get into a thriving condition. No wonder such farmers say "pigs don't pay." Pigs kept warm, dry, and comfortable through the winter, with food enough to keep them nearly fat, will, when spring comes, grow with great rapidity on food but little better than that which is ordinarily given to store pigs at that season; and so all through the summer, the effect of the good food and treatment in the winter will be very decided. With the run of a good clover pasture, and the wash from the house and dairy, with a pint or so of corn a day, these well-wintered pigs will gain rapidly, and will at any time be ready for the butcher. No matter what the price of pork may be, we are satisfied, from experience and observation, that if pigs are kept at all, the only profitable way is to keep them well. They may not always pay, but the liberal feeder has a better chance of getting his money back than the farmer who half starves his pigs. It is true that one of the objects of keeping pigs is, that they may eat food that would otherwise be wasted, and we would not be understood as advocating anything inconsistent with this idea. If possible, however, the "scavengers of the barn-yard" should be full-grown breeding sows. Young, growing pigs, whether intended for breeding purposes or for fattening for the butcher, should never be left entirely to chance food that they can pick up. Let them have the run of the yards in winter, and pick up all the food they can find, but never suffer them to depend on this alone, unless there is abundant evidence that they can find all they need. Farmers should have a pair of platform scales and weigh their pigs occasionally, and they would then ascertain whether their pigs were receiving good treatment and a proper amount of food. We have just weighed some, at four months old, that averaged 80 pounds each. They ought to be so fed through the winter as to gain 25 pounds a month, and, as they get older, and the weather gets warmer, they should gain a pound a day; and when the summer comes, with milk and clover, and a little corn-meal, they should gain $1\frac{1}{2}$ pounds a day; and for the last month or six weeks before killing, they should gain nearly 2 pounds a day. We *know* that this can be done, and we also feel certain that, at the present price of pork and grain, no branch of farming affords a greater profit than liberal feeding of well-bred pigs.

Next to liberal feeding, a dry, warm pen is of the greatest importance. Better have a good pen, so constructed that neither wind, nor rain, nor snow can enter; but, in the absence of such a pen, the farmer is inexcusable who does not contrive some plan for keeping his pigs warm and comfortable. If made of boards, a few laths can be used as battens to stop up the cracks. We have seen pigs shivering in a pen close to a heap of stable litter, where half an hour's labor with a fork would have made the pen comfortable. No matter how the snow and wind are kept out. Anything that will stop up the cracks will answer. With litter or corn-stalks a rail pen may easily be made comfortable.

We repeat—feed the young pigs well this winter, keep them growing rapidly in spring, and then, next summer or autumn, you can avail yourselves of the unusual demand there will probably be for good pork. Neglect the pigs this winter, and the probabilities are that your pigs will not be ready to kill before the price has declined. Recollect that, in any case, whether prices decline or not, liberal feeding is more profitable than a starvation diet for six months, and afterwards a surfeit of corn.

"CAN THE UNITED STATES RAISE ITS OWN WOOL?"—Why not? Have we not land enough; have we not sufficient range of soil and climate? If we can compete with other nations in raising wheat and corn, beef, pork and cheese, why cannot we raise wool enough for home consumption? It requires less labor to raise wool, in proportion to its value, than any other farm product. Peter Henderson cannot afford to raise wheat on his land, but it would be absurd for him to assert, that wheat cannot be raised with profit in the United States. There are farmers on high priced land that cannot afford to keep sheep for wool alone, but they should not assert that it cannot be raised in the United States.

DO PIGS PAY?—A correspondent in N. J. writes: "I have just footed up the proceeds of one brood sow, kept during the past year, and find I have received $406.54, and have the sow still on hand. The pigs were kept and fed in an ordinary manner during the summer on milk, and aside from the poor corn, not more than 100 bushels of ears of good corn were fed." The pigs were sold at from 5 to 11 months old.

Maple Sugar Making.

BY W. T. CHAMBERLAIN, HUDSON, O.

During the last twenty-five years many improvements have been made in the apparatus for, and methods of, making maple sugar. I give those now in use by the best sugar-makers of Northern Ohio.

THE BUCKETS are made of the best "IX" tin. They are straight, (not flaring) and are of three sizes—three buckets fitting together and forming a "nest." The nest occupies only the space of the largest bucket, thus securing convenience in handling, and economy in storing. The three sizes, too, permit the size of the bucket to be adapted to the flowing capacity of the tree. The dimensions are—Largest, circumference 34 inches; depth, 9 in.; capacity, 15 quarts. Medium, circumference $32\frac{1}{2}$ in.; depth, 9 in.; capacity, $13\frac{1}{2}$ quarts. Smallest, circumference 30 in.; depth, 9 inches, capacity, 11 quarts.

Three buckets require eight sheets of 10×14 inch, and two sheets of 10×10-inch tin. The sides of each bucket require two 10×14 sheets and a *piece*. The piece in the largest is $7\frac{1}{2}$ inches wide, and in the medium 6 inches. Both these pieces are made of the seventh sheet of 10×14 tin. The bottoms of these buckets are made of the two 10×10 sheets. The *piece* in the smallest size is $3\frac{1}{2}$ inches wide, and this, with the bottom, is made of the eight sheet of 10×14 tin. Figure 1 shows the smallest of the three buckets; in the other two the piece is much wider. Just below the wire rim an inch hole is punched, so as to hang the bucket on the "spile." The hole is in the middle of the piece above mentioned, as in fig. 1, as the seams strengthen the bucket, and prevent its bending when it hangs full of sap. Such buckets cost now about $40 per hundred. The buckets should be painted outside with yellow ochre, or other durable paint, to protect them from rust. The sap does not rust the inside. The buckets will last thirty years or more. Tin is better than wood, as it is more easily kept clean, does not sour the sap so much, and does not shrink, get leaky, and require hoop-driving every spring, when one is in haste to be tapping. It is also more easily handled, and stored. It is better than earthen-ware, which is heavy to handle, and cracks when the sap freezes.

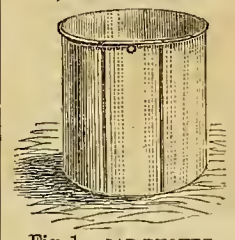


Fig. 1.—SAP BUCKET.

Fig. 2.—SPILE.

Hanging the bucket on the tree is preferable to setting it on the ground. It saves hunting for a block or stone; the bucket is more conveniently emptied, as will be seen hereafter; the wind cannot blow the sap away as it drops, nor blow the bucket away; and, what is of most importance, *the bucket can be covered.*

THE SPILES, fig. 2, are made of beech or maple, turned and bored by machinery. They are better than elder with the pith punched out, because they are not so liable to sour, and are stronger and more durable. They should be $\frac{7}{8}$ of an inch in diameter, 3 or 4 inches long, tapering for an inch of the length, and only $\frac{5}{8}$ of an inch where they enter the tree. Each should have three notches turned around it, about an inch apart, to keep the bucket from sliding off. There should be three notches, so that the bucket may be hung in one or the other of them, and be level, whatever way the tree may lean. The spiles cost about $1.25 per hundred.

The Covers.—The buckets should *always be covered.* This is the greatest single improvement yet made. It keeps out rain, snow, dirt, insects, and prevents the effects of heat and cold. The sap is not so liable to sour during the warm days, nor to freeze in cold nights. Keeping out the rain, however, is the chief thing. Sometimes in a sugar season, four or five inches of water fall, as snow or rain. This, in a "camp" of five hundred trees, would make about twenty-five barrels of water to be boiled away. Nor is the useless labor and expense of boiling this water all. The rain trickles down the trees, carrying with it coloring matter and dirt. Syrup or sugar of the first quality can never be made from sap and rain-water. The covers are made of $^3|_4$-inch lumber, 1 foot wide, and planed on one side.

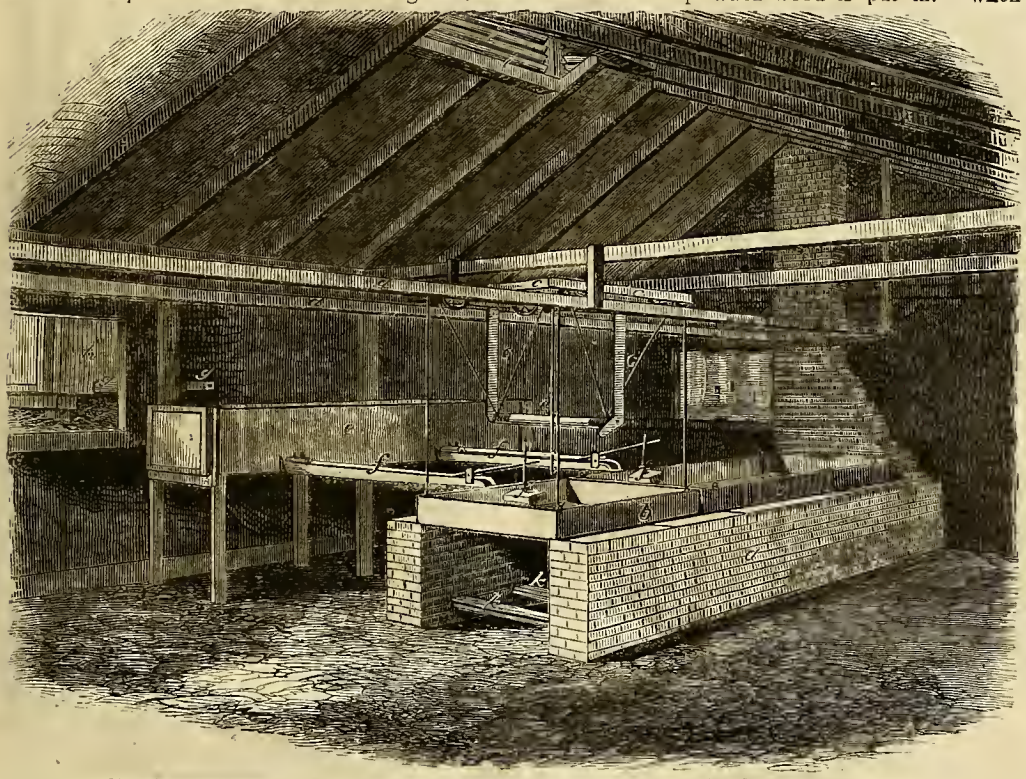


Fig. 3.—Interior of Sugar House, with Arch and Boilers.—(*Scale 8 feet to 1 inch.*)

A, Arch; b, b, Boilers or Pans; c, c, Car, hooked to front pan, ready to lift it; d, d, Track; e, Store-trough; f, f, Conductors, with Self-feeding Attachment; g, g, Conductor from outer Store-trough; h, Outside Store-trough; i, i, Ventilator; k, k, Iron Supports for the wood, best made of rail-road iron, set three feet apart.

The Arch and the Boilers (fig. 3).—Select a dry, level spot, near the center of the sugar orchard or "camp," and, if possible, just at the foot of a small hill, that slopes at least three feet in twenty. Dig below the frost, and lay a good foundation of stone. On this build an "arch" of hard burnt brick, laid in lime-mortar. The wall should be 12 or 16 inches thick as far back as the wood reaches, beyond this then 4 inches less will do. An arch of good brick and mortar, on a good stone foundation, with walls 16 inches thick, will last fifteen years with occasional repairs about the mouth. But if the bricks are laid in mud for mortar, or if the arch is not built upon the rock, it must be rebuilt each year. The wall should be 2 feet high, and, for five hundred trees, 15 feet long. Beyond the point where the wood reaches (five feet from the mouth), the arch should be filled in with dry earth to within five inches of the top. This throws the flame and heat all close to the back pan, as it passes it, and makes this boil about as fast as the front one. The arch has a sheet-iron door (not shown in the engraving, fig. 3), which is closed except when wood is put in.

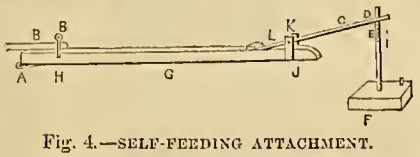


Fig. 4.—Self-feeding Attachment.

The Pans (boilers) are made of heavy Juniata sheet-iron, and are 7 inches deep, $3^1|_2$ feet wide, and usually from 6 to 8 feet long. Two sheets are riveted together lengthwise, and the corners are cut, lapped, and riveted. The edge is strengthened by a thick band of strap-iron, and four strong wire handles are attached near the corners (see *b*, fig. 3). Directly above the pans, and parallel with them, runs the track (*d*, in fig. 3), and on this is the car (*c*, fig. 3), arranged with crank, windlass, ropes and pulleys, to lift the pan from the arch a few inches, and roll it towards the front, away from over the fire, when you wish to take off syrup. Those who would avoid the expense of the car, divide the large front pan into two small ones, the front one $3^1|_2 \times 3$ feet. Then they dip out, with a flat-edged dipper, all the syrup but a pailful, when the pan is easily lifted off by two men, and the syrup poured from one corner. These broad, shallow pans evaporate the sap fully twice as fast as the old kettles used to do, even when they were set in an arch. Kettles belong to the days of wooden plows. Some maple sugar makers use the patent sorghum evaporators instead of pans; but the ordinary pan here described answers perfectly well, and only costs one-third as much, or about $10 for an 8-foot pan.

The Floats and Faucets.—Quite a convenience is the "self-feeder" *f f*, fig. 3, which is shown upon a larger scale in fig. 4. It consists of an ordinary wooden conducting trough (*G*, fig. 4), attached to the store-trough at *A* by a hinge. The sap enters, through the faucet *B*, at the point *H*; *F* is a tin float, resting in the sap or syrup in the pan; *C* is a lever, having the fulcrum at *L*, the weight at *H*, and the power at *D*. This lever and the conductor together form a compound lever, so proportioned that when *D* rises or falls an inch, *H* rises or falls *half an inch.* *I* is a perpendicular (vertical) bar from the float *F*; at *E* are holes for the horizontal pin at *D*, joining it to the lever *C*. When the pin is in the upper hole, there cannot be more, nor much less, than an inch of sap in the boiler. At the second hole there will be about two inches, and so on. The flow of sap is regulated thus: When the pan is empty, the float rests on the bottom of the pan; the bottom of the faucet, near *H*, is half an inch from the conductor, at *H*, and the sap flows freely. As the sap in the pan rises, the float rises with it, and gradually lifts the conductor until the point *H*, presses against the bottom of the faucet and stops the flow of sap. As the sap in the pan boils away, the float sinks, and the sap flows again. The chief advantage of the self-feeder is that you can build a large fire and leave it with safety as long as necessary. The sap or syrup can never burn, and the sap can never overflow the pans. Those who have not the self-feeder, when leaving a large fire, must either fill the pans, or leave the faucets turned so that the sap will flow into each pan about as fast as it will boil away. In the former case, if they are gone too long, their sap will boil to candy, or burn. In the latter case, the sap will overflow. A self-feeder costs about $2.

The Store-troughs (*e*, in fig. 3), are made of long, wide, clear, well-seasoned 2-inch plank—pine or white-wood (poplar), rabbeted and spiked together, and bolted horizontally at top and bottom with six bolts, (two at top, and four at bottom) having nuts to loosen or tighten, as the bottom and ends swell or shrink. Three coats of paint are needed. At least five barrels of storage are required for each hundred trees. The larger trough or troughs should be outside, as it keeps the bulk of the sap coolest. From the outer trough or troughs the sap flows through a wooden or tin conductor to the inner trough. The sap is gathered in barrels, rolled up nearly horizontal skids from the stone-boat sled, and emptied through the bung-hole into the outer trough. The arrangement of skids, troughs, conductors, etc., is best seen in the picture engraving of the camp on the next page.

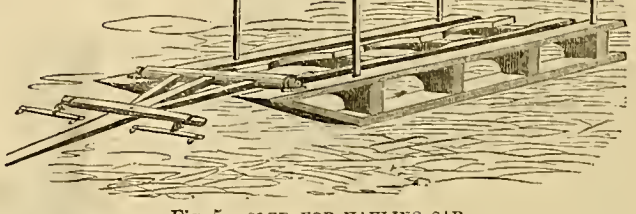


Fig. 5.—Sled for Hauling Sap.

The Wood-shed and Wood.—It saves half the time of boiling to have the wood prepared and housed during the dry weather of the previous September or October. With green or wet wood you may succeed, with a good 15-foot arch, in evaporating a barrel to the hour. But with good dry wood, and far less labor, you can evaporate more than two barrels to the

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A MAPLE SUGAR CAMP.—*Drawn and Engraved for the American Agriculturist.*

hour. It is always best, and sometimes very important, to have the sap boiled rapidly. Once my seven hundred trees yielded seventy-five barrels in twenty-four hours. My wood was not the best; Sunday stopped our boiling, and Monday I had twenty-five barrels of sour sap, which would only make a second-class syrup.

It is best to have three forty-gallon casks for gathering sap, and two twenty-gallon casks for syrup. It is also best to have a stone-boat for drawing the casks in gathering sap. It is shown in fig. 5, and is made much like an ordinary wood-shod farm sled, only the runners and shoes are eight inches wide. It has two boards running parallel with the raves, fitted for holding the casks. There will also be needed a four-gallon funnel, large at the top, and made to fit the barrel, and not shake about; also two or three cone-shaped strainers, made of rather loose white muslin, and held open at the mouth by a hoop or strong wire, one foot in diameter; also two yards of loose muslin to tack tightly across the vats. Other small articles will be needed, such as skimmer (perforated tin, made square, so as to fit the corners of the pans), a dipper with a flat edge, large tongs and shovel, pails for gathering, a lantern, etc. When these things are prepared, you are ready for

TAPPING.—When a decided sugar-day comes, which is indicated by the appearance of a general thaw, late in February, or any time in March, it is time to be busy. Let one man load up two hundred buckets and two hundred covers at a time, in a large wagon or sled-box, and start out for distributing. He should be careful to leave the large buckets at the thriftiest trees. This is one advantage of having buckets of three sizes. Take your half-inch bit, set in a good bit-stock, select a sound side of the tree, where there are no old holes yet unhealed, and bore about two feet from the ground, or as low as you can without having the curve of the roots interfere with the hanging of the bucket. Bore about two inches deep, drive your spile firmly, hang your bucket so that the top of the outer edge shall be on a level with the bottom of the spile hole. This requires some care, but if the spiles are notched as directed, there is no difficulty. If the tree stands plumb, use the middle notch (see fig. 2); if it leans towards you, use the inside notch; if from you, use the outside one. Figure 6 shows both buckets hung right, and fig. 7 shows both buckets hung in the wrong notch. If you have more buckets than trees, you can put two buckets to each large, thrifty tree.

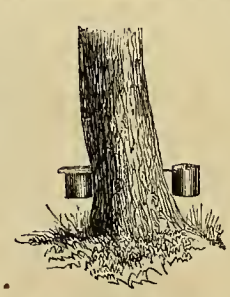


Fig. 6.—HUNG RIGHT.

Fig. 7.—HUNG WRONG.

See that the spile is driven firmly, put the cover on, and go to the next tree. Tapping requires judgment and care. A heedless hand will bore holes in a poor place, and hang half the buckets so that they will waste sap. A good hand will tap thirty trees to the hour where the trees stand thick. Two men, one boring, and the other driving, hanging and covering, will do more than twice as much as one. You must be wide-awake now, for if it is a good day, the trees first tapped will need gathering by the time you have tapped five hundred trees.

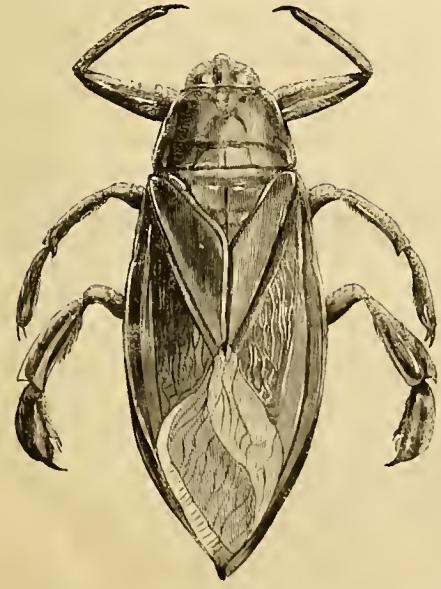
The Mexican Cobæa.—Variegation.

The Mexican Cobæa is a rapidly growing climber, soon covering a trellis or lattice-work with handsome foliage, and later in the season producing large bell-shaped flowers. It is interesting and attractive, and, though a quite old plant, is not very common in gardens, probably from the difficulty of starting it from the seed. It is properly a green-house perennial, but if it is started early enough, it will bloom the first season. Those who sow the seeds in the open ground, at the North, at least, will generally fail, or, if they do succeed in raising plants, they will be too late to bloom, unless in an unusually prolonged season. Those who wish to start the Cobæa from seeds, can do so in a hot-bed, or in a sunny window. The seeds, which are large and flat, should be thrust into the soil edgewise; the plants are to be put out in a rich place when frost is no longer to be feared. It being a perennial, the florists usually keep plants grown from cuttings. The readiest way to obtain it is to procure well-established plants from a green-house. The flowers, which are two inches or more long, appear late in summer, are at first green, and gradually change to a deep violet or purple, and last for a number of days. The large leafy calyx, and the long stamens, bent to one side of the flower, give it a striking air. In these days of variegated leaves, we are prepared to see any old floral friend wearing a "motley coat," and we were not altogether surprised when Mr. Peter Henderson pointed out to us a Cobæa which had taken a fashionable freak, and appeared in dappled leaves. Should the Variegated Cobæa appear as well out of doors as it does in the green-house, it will prove a very acceptable novelty, as its leaf markings are very well defined. The species generally in cultivation is *Cobæa scandens*, a native of Mexico. The genus was named in honor of one Cobo, a Spanish priest.

THE VARIEGATED MEXICAN COBÆA.

The Gigantic Water-bug.

The large Water-bug must have been unusually abundant last summer, as several have been

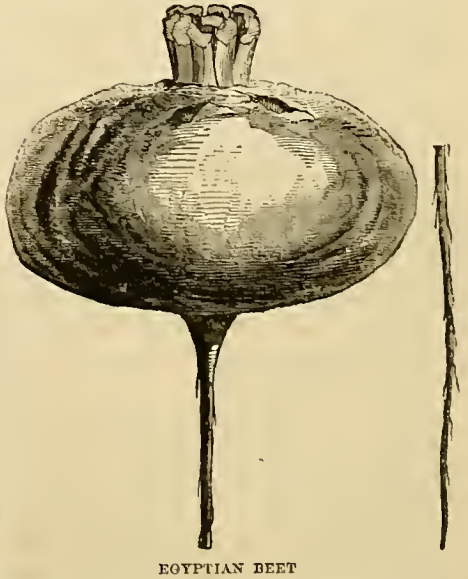


GIGANTIC WATER BUG.

sent us from different parts of the country. Mr. T. C. Grooms, Green Castle, Ind., from whose specimen the engraving was made, thus describes their appearance, in large numbers at his place: "About the middle of August, during a storm, after a rain ceased, large quantities of these bugs were found on the ground. My attention was called to them by the chickens and turkeys making a noise. A neighbor of mine who has a tan-yard, found thousands of them in the yard. The water in the vats was covered with them. By noon the next day after they came, they were all dead."——This Water-bug (*Belostoma grandis*) belongs to the sub-order Hemiptera, which includes the true bugs, plant-lice, fleas, locusts, and other disagreeable insects. There are several allied genera, which, like this, inhabit the water. Most of them swim on their backs, and their legs are admirably adapted for this kind of locomotion. They have a sharp sucker or proboscis, through which they take their food, and which, when not in use, is folded up under the chest. This insect lives on other insects, and is said to be very destructive to young fish; a friend informs us that he has been several times sharply wounded by this water-bug while wading.

The Egyptian Beet.

In beets, deep color and sweetness seem to go together, but it is difficult to associate these two qualities with extreme earliness. The Bassano is a very early variety, but it is not of as fine quality as the Blood Turnip, which is a week or ten days later. Besides earliness and good qualities for the table, a handsome shape, small top, and slender tap-root are desirable. Some think that perfection has been reached in Dewing's Early; others consider Hatch's the best of the early beets, and this year the Egyptian puts in a claim for superiority. The seed was introduced last year by a German seedsman who states that the variety came from Egypt. It is said that the leaves are distinct in character and are very ornamental, as is the plant when the roots are set out the second year for seed. It must be recollected that beets are used in Europe in ornamental planting for the sake of the effects of color produced by their foliage. We have not seen the leaves, but the roots as raised by B. K. Bliss & Son, were of fine shape, and were within of an intensely red color. We give an engraving showing the form.



EGYPTIAN BEET

An Experiment with 25 Varieties of Tomatoes.

BY PETER HENDERSON, BERGEN CITY, N. J.

Last spring we gathered together all the varieties of Tomatoes that could be obtained, with the view of testing their respective merits. By sowing time, we found we had upwards of two dozen varieties, or at least that number of papers, with different names attached. These were carefully sown under glass on March 20th, in a temperature averaging 70°. In three weeks the plants were an inch high, when they were transplanted, at about the distance of an inch apart, into boxes containing three inches depth of soil. Remaining in these boxes for three or four weeks longer, they were again transplanted into cold-frames, this time, six inches apart, and grown carefully by attention to ventilation and watering, until it was safe to plant in the open ground, which, in this district, is the latter part of May. All were planted on the same day, May 26th, and tied up carefully as they grew to stakes placed three feet apart. On the 6th of August they gave the following results, which satisfy us that the difference in earliness of the varieties of different tomatoes can never exceed ten days, even if the very earliest and latest are taken to test. For example, we find that in 8 varieties, all claiming to be earlier than the earliest, 12 lbs. of fruit taken from each did not vary 48 hours in the ripening, though in some cases a single fruit might be a week in advance of the others, as in the case of Keyes' Prolific, but its main crop in weight was rather behind, hence, for market purposes, could not be claimed as early. Our

notes of the varieties, taken on the 6th day of August, are as follows:

BOSTON MARKET.—Scarlet-crimson; large, rather rough, early; foliage drooping, defective.

EARLY YORK.—Evidently the same, or so near it, as not to be distinguished.

LYMAN'S MAMMOTH.—Color, salmon shade of crimson; second early; large, smooth, and productive; differing slightly from the Fegee.

GENERAL GRANT.—Color, scarlet-crimson; smooth, solid, and of medium size, with strong, healthy foliage, which will adapt it for light soils; an excellent variety in all respects; early.

THE COOKS' FAVORITE.—Color, deep red; size, medium, solid and productive; second early.

ROSE.—A European variety, of a pinkish-salmon color, of immense size, some of the fruit weighing 23 oz., but it is ill-shapen, wrinkled, and late, and can only be useful for catsup.

BUCK'S LARGE RED.—A Southern variety, similar to the above, except in color, which is of the usual crimson-scarlet shade.

SIDELL'S NO. 2.—The darkest shade of scarlet we have yet seen in any tomato; also very solid, smooth, and productive; a desirable variety for private use, but too late for market.

NEW YORK MARKET.—Light scarlet-crimson; large, rather rough, but prolific and early.

SIDELL'S MAMMOTH, BOSTON PRIZE, AND MAUPAY'S SUPERIOR, are so like the New York Market, that it is useless to make distinction.

KEYES' PROLIFIC.—Showed the first ripe fruit, but is too small for a market sort.

DWARF PROLIFIC.—A distinct variety of dwarf, strong, upright growth, somewhat resembling the Tree Tomato, but more productive; fruit, medium size; color, rich scarlet, solid, and early; desirable for private use on grounds of limited area, as it can be grown one-half closer than most varieties.

YELLOW PERFECTED.—A large, smooth variety, of a golden-yellow color; desirable in every respect. The yellow varieties, however, do not sell freely in our New York markets.

GOLDEN STRIPED.—This variety is speckled with yellow on a crimson ground, like the "Crimson Cluster;" late and quite rough.

FEGEE IMPROVED.—The improvement is in the greater smoothness of the fruit; but this, like all other varieties not having the crimson-scarlet shade of color, is not desirable as a market fruit; the color is a salmon-violet shade.

VALENCIA CLUSTER.—A sour, rough variety, in no respect worthy of cultivation.

CRIMSON CLUSTER.—This is one of the earliest kinds; of medium size, smooth, and solid; the fruit is borne in large clusters, averaging a dozen or so in each, having the very desirable quality of ripening nearly the whole cluster at once; as an early fruit it is very desirable for market; though, when the market is well supplied, its color might be objectionable, as its crimson-scarlet color is speckled with yellow.

SIMMS' CLUSTER.—Color, crimson-scarlet; smooth, and solid; rather late.

KING OF TOMATOES.—One of the earliest; medium size; smooth, of a rich crimson-scarlet shade; in all respects desirable.

CHARLTON'S EARLY.—Almost identical with the above.

CEDAR HILL.—Very early; medium size; immense bearer, but on heavy soils rather rough.

EARLY YORK.—Early; medium size, smooth, and prolific; hardly solid enough for general use.

BOSTON MARKET.—Evidently the same.

TILDEN.—Crimson-scarlet; smooth; very prolific, but late.

ALGIERS.—A large, late, strong-growing kind, of no special merit.

MICHIGAN No. 1.—A very dark crimson variety; smooth, solid, early, medium size.

RISING SUN.—A large-sized, smooth, solid variety, wonderfully productive, which ripened fruit next to "Keyes' Prolific," a heavier weight of ripe fruit being taken from it on the day of testing than from any other sort. Selecting the four best varieties from the whole, we would place this variety as *first*, "Gen. Grant" as *second*, "Crimson Cluster" as *third*, and "King of Tomatoes" as *fourth*.

These conclusions are arrived at from this experiment, made on our heavy loamy soil of Bergen City, in Hudson Co., N. J.; possibly other varieties might be preferred in different soils or in different latitudes.

In my opinion, the extreme point of earliness in tomatoes has been reached years ago, and now all further improvements must be in point of size, smoothness, and solidity; and that any one laying claim to having varieties a specified number of days or weeks earlier than those we already have, does so without having a knowledge of the subject, or with the desire to impose on the public. The tomato is a plant requiring at all times a certain high temperature to ripen its fruit; and though it may ripen in Georgia in May, in Virginia in June, in Delaware in July, or in New Jersey in August, it requires the same aggregate amount of heat to do the work. The same is true of most fruits and vegetables; we reach a certain point of earliness with a given variety in a given locality, when the temperature tells us we must stop. If improvement in earliness was progressive, we might have reason to expect that the Radish or Lettuce, which matures with us in the open ground here in May, would yet mature in April.

Hedges, or live Fences for the West.

BY OUR SPECIAL IOWA CONTRIBUTOR.

That we upon the timberless prairies must *grow* our fences where we want them, is in my mind a fixed fact. This being settled, the questions arises, *what* shall we use? and *how* manage and cultivate?

The Osage Orange without doubt, stands at the head of hedge plants for this latitude. The idea was formerly entertained that it would not succeed. As an evidence of its success under proper treatment, it may be noticed that our farmers are almost universally putting out more and more of it each succeeding year. Thousands fail *simply because* the conditions of success are not complied with.

Good plants, a thorough preparation of the soil, including drainage, proper setting, cultivation, and future management, are indispensable. It is safe to say that one-third of the plants as they come from the nursery, are unfit to be used. If they have vitality enough to survive the removal, they only drag out a sickly existence, and are finally crowded out by the more vigorous plants and leave the hedge full of gaps, thus ruining its utility and beauty. At the present low price of the plants (about $1 per thousand) it is economy to use none but first class. If others are set at all, they should be carefully assorted, and the first and second class set by themselves.

The next step towards success is the right preparation of the soil. Many in their haste to reach results fail just here. They are impatient to get a start, and do not properly prepare their ground. Sod *may* be prepared to plant the following spring, by breaking in June, two inches deep, and in September plowing deeply, throwing the furrows each way, leaving as deep a ditch as possible on the line of the hedge. This gives the frosts and rains a chance to operate upon the subsoil. In the spring throw the furrows back, not only filling the ditch, but raising a bed above the natural level—more or less as the ground is flat or rolling. If quite flat, a bed 6 feet wide, and 15 inches above the level, is none too high; for bear in mind that the Osage cannot endure wet feet. Having thus prepared the bed, take a small stirring plow and open a furrow for plants. Let a hand follow with the plants in a bucket, keeping the roots covered with *thin mud*, and set them up against the perpendicular side of the furrow, six inches apart, if for an upright hedge—or twelve inches if it is to be slashed. Another hand should follow with a hoe, and draw the earth into the furrow, covering the plants a little deeper than they stood in the nursery.

I like the plan of taking up the plants in the fall, keeping them in some well-protected place till they start in the spring, so that the lifeless ones may be *known*, and rejected. If this is not done the earlier they are set after that the frost is out of the ground, the better. The roots are easily injured and should be handled with care, and kept well moistened. If the hedge plants are bought at a nursery, they will have been trimmed before sending out. If one raises his own plants, he should cut back the top to about 4 inches, leaving the root about 8 inches long.

The plants being in the hedge row, cultivation must follow, and the more the better. Never set a hedge so close to a fence, that it cannot be well cultivated on both sides. A sulky plow may be profitably used for close cultivation, if carefully manipulated; a double shovel for more distant. Mulching is good but thorough cultivation better; but mulching is better than poor cultivation. Protection the first winter in this and more northern latitudes, is absolutely necessary. For this purpose refuse straw or coarse manure are useful. This mulching makes a good substitute for cultivation the second year if properly done, and will in a great measure keep down the weeds, and retain moisture. If the hedge is to be "slashed" (or plashed), no trimming will be necessary; otherwise in August cut off half of this (second) year's growth. Slashing is done the third year in May or June, by cutting each plant half through near the ground, the nearer the better, and laying over one upon another nearly horizontally, leaving one plant uncut and upright as a stake or stay, once in about ten feet. There is a difference of opinion upon the question of slashing, some holding that it injures the vitality of the hedge; but it is very evident that a more impenetrable hedge can be made in this way than in any other. The plan has also the advantage of requiring fewer plants and in consequence a more rapid growth can be obtained, than when closely set. A word for the white or gray Willow as a hedge plant. For sloughs and other places too wet for the Osage, the willow is admirably adapted. Use the willow stakes 5 feet long, drive them down one foot, 8 or 10 inches asunder, and in three years time they will form a barrier against stock. The more usual way of using the willow, though not so good, is to plant cuttings 6 inches long, which are forced into the ground at an angle of about 25 degrees, leaving only one bud

above the surface, and that on the upper side of the cutting; thus securing an upright growth, which is important. They should be set 8 inches apart, as they make a much larger and more rapid growth than the Osage.

The Willow may be cut in the spring, and set at any time before the leaves start, though early setting is to be recommended. It is a good plan to set two or three rows where a wind-break is desired in addition to a fence. There are other hedge plants which are regarded with more or less favor; but with the Osage and Willow we may well rest content. S.

Powesheik County, Iowa, December, 1869.

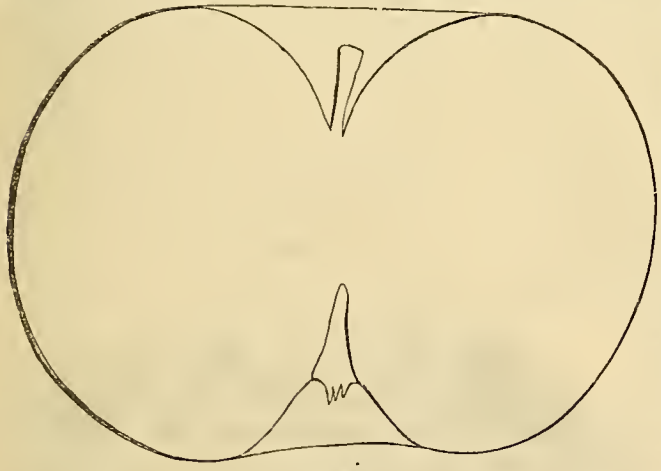
Some New or Little Known Apples.

BY CHARLES DOWNING.

[Mr. Downing has sent us notes and drawings of some apples which have come to his notice since the publication of his great work, and of others which are briefly mentioned there, but for the description of which he has better materials. We give a portion of them.—EDS.]

MONTE BELLO.—I am indebted to A. C. Hammond, of Warsaw, Ill., for specimens of this new and fine apple. Mr. H. writes me that it was raised from seed on the place of Matthew Gray, at Riverside, in Monte Bello Township, Hancock Co., Illinois. It is there considered an apple of great promise, the tree being hardy, rather upright, moderately vigorous, and healthy; an early and annual bearer, very productive, and the fruit always fair and smooth.

Fruit above medium, oblate, regular; Skin pale, yellow, shaded and mottled with light

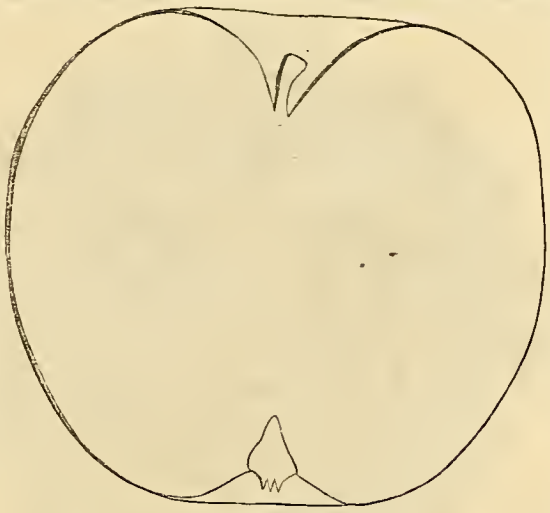


MONTE BELLO.

red, and splashed and striped with dark rich red nearly over the whole surface, and sprinkled with a few light dots; Stalk very short, and small, inserted in a broad cavity, russeted; Calyx closed, or nearly so; Segments short, erect, almost closed; Basin, medium, or rather large, deep, smooth; Flesh very white, fine grained, a little stained next the skin, very tender, juicy, mild, subacid, vinous flavor; Quality very good, or best; Core medium, or small. Ripens from September to December.

IRISH PIPPIN.—Specimens of this fine apple were sent me by Benjamin Borden, of Norristown, Montgomery Co., Pa., and "is said to have originated with Stephen A. Porter, of that town. Tree, a free and upright grower, and forming a handsome head; a very productive and showy fruit, and inclined to bear every year unless the season is unfavorable."

Fruit rather large, roundish, slightly conical; Skin whitish, shaded with light bright red and stripes, and broken splashes of dark red, sprinkled with a few light dots; Stalk very short and small, inserted in a medium cavity, sometimes a little russeted; Calyx closed, segments short; Basin small, corrugated; Flesh white,



IRISH PIPPIN.

fine grained, tender, juicy, with a pleasant, mild, subacid, vinous flavor; Quality very good; Core rather small. Ripens in October and November, and with care, will keep until April.

Window Plants and Frost.

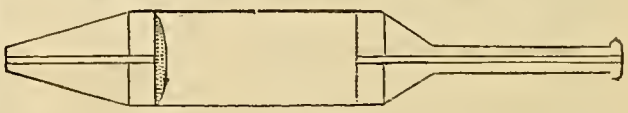
Plants in dwelling rooms are more apt to suffer from a high temperature and a dry atmosphere than from frost; yet it is sometimes the case that there is danger that the plants will freeze during excessively cold nights and precautions must be taken to prevent it. With most of the plants grown in window collections the temperature may go down at night to 35 degrees without injuring them. Moving the plants from the window to the centre of the room will often save them. If it is necessary to take the plants to another room it should not be to one that is much warmer than that in which they have been kept.

A close pantry or closet in the interior of the house is generally frost proof and will serve as a place of refuge. Another method is to make an awning or canopy of some kind over the plants. We have recommended that the table upon which they stand should be so arranged that a moveable framework could be attached to it, to hold a sheet or other covering to keep off the dust, while the room is being swept. A covering of this kind will be found useful in protecting the plants in cold nights, as it will enclose a body of air, which is one of the best nonconductors of heat. A blanket, or a thinner fabric—even newspapers, placed over the plants will often save them. Should the plants become frozen, the effect will vary on different kinds; the more succulent and tender ones are generally totally killed and are past remedy; geraniums and other half woody plants may be injured in their young growth only, and will recover after the damaged part has been cut away. Camellias, carnations and others, are half hardy and are not seriously injured by a moderate freezing. When plants are frozen, never take them to a warm room or use warm water to thaw them, neither will it answer to let them remain where the sun will shine upon them. Remove them to a cold room away from sunlight where the temperature is but little above freezing, and let them thaw out gradually.

BUFFALO CANE.—The *Arundo Donax* is a tall grass, growing some 10 or 12 feet high, and is sometimes cultivated at the North as an ornamental plant. A correspondent at Port Gibson, Miss., writes that it is there called "Buffalo Cane," and that it is successfully used on hill-sides and elsewhere to prevent the land from being washed away. Cattle are fond of the leaves. It grows wild in some parts of Texas.

The Green Fly and Red Spider.

The letters of our correspondents indicate that those plant pests, the Green Fly and Red Spider are, as usual, causing trouble among the house plants. There is not much difficulty in getting rid of them, if they are taken in time, but it is often the case that the growth of the plant is checked and its vitality impaired before the cause of the trouble is discovered. The Green Fly as it is called by florists, also known as plant louse, is an Aphis. There may be several species found in our plant collections, but as far as the cultivator is concerned, they are the same both in their effects and in the means used in destroying them. Those who have but a few window plants which they think enough of to inspect very frequently, need never be troubled with the Green Fly, as its first appearance will be noticed and the insects may be readily removed by means of a brush. A rather limber tooth brush will answer. They may also be removed by the application of an infusion of tobacco, or by the use of soap-suds in which a portion of aloes has been dissolved. Both surfaces of the leaves must be wetted by these preparations, which may be conveniently accomplished by dipping; afterwards they are washed with water. Tobacco smoke is very efficacious in destroying the insects. Florists give their collections a thorough smoking every week or twice a week, and thus prevent the insect from establishing itself. A few shavings are placed on the brick walk of the green-house, lighted, and covered with dampened tobacco stems, such as are thrown out by the cigar makers. Any other means that will cause the tobacco to burn slowly with a great deal of smoke, will answer. The smoking is done just at night, and the house kept shut up tight until morning. A modification of this plan can be practiced upon a few plants or a single one. If there is a small room



SMOKE TUBE.

which can be used for this purpose, the plants may be placed in it, and smoke made by placing a few coals in an iron vessel or large flower-pot, and putting on the tobacco. Care must be taken that the tobacco does not burst into a flame, as this would injure or destroy the plants. A single plant or two may be placed under a tight box, a barrel or any extemporized cover that

will retain the smoke. Where the enclosure is small, the smoke must be generated with the least possible heat. A common tobacco pipe may be used, or the contrivance described by Mr. Quinby for smoking bees will answer for small operations. It consists of a tin cylinder, with a perforated wooden plug at each end; one of these serves as a mouth-piece to blow through, and the other to discharge the smoke. The cylinder is to be nearly filled with smoking tobacco, by removing the mouth-piece, a small live coal dropped in, and the plug replaced. By blowing through the mouth-piece a copious stream of smoke will be driven out at the other end, and may be directed into the enclosure which contains the plant. In smoking plants in a small way we have found that an hour's exposure to the smoke answered as well as a longer time.

The Red Spider is more insidious in its attacks. It is so small as to escape any but an experienced eye, and usually the first warning of its presence is in the blackened and dead leaves of the plant. Its effects are commonly attributed to almost anything but the right cause, and more water, change of soil and other treatment are tried in the belief that something is the matter at the root when the real trouble is upon the leaves. The Red Spider is barely visible to the naked eye, but one who knows what to look for will at once detect it. If a curled or browned leaf is noticed and the underside is found covered with a minute cobwebby film, the Red Spider will be found by close observation. It is more likely to occur in hot and dry rooms than elsewhere. Abundant watering of the leaves will soon dispose of it. Plants which have firm leaves like the Camellia, can be washed with a sponge; those which would be injured by such treatment should be laid upon the side and showered by water from a watering pot with fine holes, taking care that the under surface of the leaves be thoroughly wetted. A repetition of this will in a few days, dispose of the little torment and a regular weekly bath of this kind will not only prevent its lodgment, but add to the health of the plant by removing the dust.

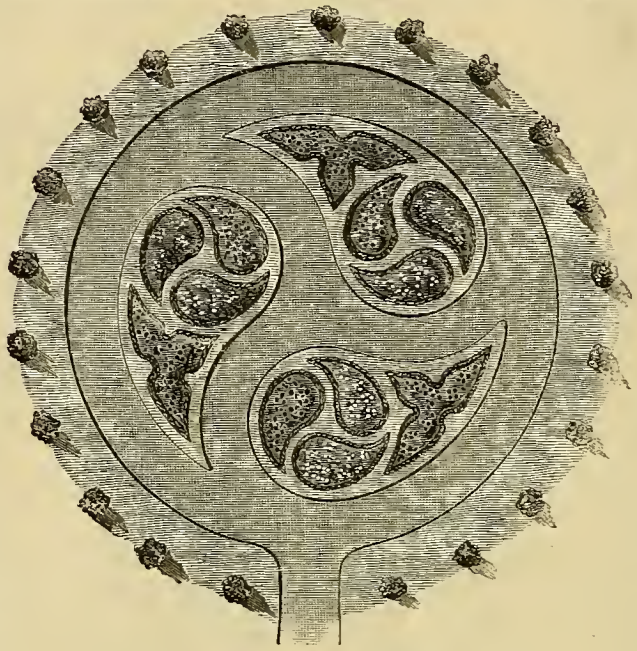


Fig. 1.—GARDEN AT THE TERMINUS OF A WALK.

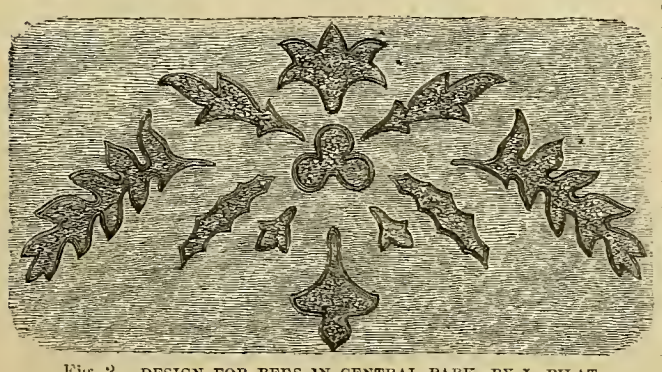


Fig. 2.—DESIGN FOR BEDS IN CENTRAL PARK, BY I. PILAT.

Laying Out a Flower Garden.

A number of letters have come to us this winter asking us to give directions and designs for laying out a flower garden, and it is gratifying to note that our friends are maturing their plans before the working season comes on. It is easy enough to give designs, but the trouble would be that no particular one would suit a half dozen of our readers, as their means and tastes vary as widely as do the shapes and sizes of the portions of land at their disposal. If one is to begin upon a new place without stint as to land or purse, he had better employ a first-class landscape gardener to both furnish the design and lay out the work. But the majority of our readers either do their gardening within the boundaries of a village lot or in the usually too restricted space of the "front yards" to farm-houses, or at best have a moderate-sized country place with an acre or less of ornamental grounds. In laying out a flower garden one has first to consider the territory at command, and then what he wishes to cultivate flowers for. If he wishes to produce effects of color, which can only be done by masses of flowers and bright leaves, where all individuality of the plants themselves is lost, he will pursue a different course from those who wish to grow flowers as flowers—objects to be loved and cared for, and developed into things of individual beauty. Such an one cares not if a plant be new or old, fashionable or unfashionable, if it please him with its own beauty, or through some cherished association. Before describing the mixed flower border, let us consider the case in which flowers are grown for their effects in masses. Plants can be employed for this purpose in two distinct methods: in beds each containing but one kind, or in beds where plants affording distinct contrasts in the colors either of their flowers or of their leaves are grown in successive bands or belts. The first is properly called bedding, and the second, belt or ribbon gardening. A large class of plants adapted to both are known as bedding plants. Where the beds are planted with distinct colors, they must be of such form that each one will hold a proper relation to the other, and the whole group of beds form a pleasing and symmetrical figure. Here are opportunities for a display of taste in designing the forms of the group, and the beds of which it is composed, as well as in the proper choice of plants with which to fill them, in order that a pleasing effect of colors may be obtained. Squares, triangles, and other figures with straight lines, are less tasteful than those with curved outlines. In fig. 1, we give a design by the late Mr. E. A. Baumann, as an example of simple work of this kind. In this design a flower garden is represented at the terminus of a walk. The circular space is graveled; within it are three pear-shaped figures in grass, within which are cut the flower beds. Beds of this kind are set in the grass, as in the above example, or they are placed with very narrow graveled walks between them, and their outlines marked with an edging of box or other material. It will be seen that the fancy may suggest a great number of forms for the beds, or the figure which they compose. Mr. I. Pilat, gardener at Central Park, N. Y., has introduced with good effect, figures suggested by leaves and the parts of flowers. In fig. 2 is given a portion of the beds in the flower garden of the Park. A single oval or other shaped bed planted with one kind of flowers only, or filled with some plant of showy foliage, such as Coleus, is often made in a lawn with excellent effect. From beds of this kind it is but a step to the ribbon style of planting, in which several colors are used. To be effective, ribbon-planted beds should be of considerable size, and the plants selected with reference to similarity of hight and correspondence in time of blooming. Planting of this kind is also used in such groups of beds as those to which we have alluded, but requires nice management to prevent confusion. Ribbon beds may stand alone by themselves, or they may be arranged with a symmetrical relation to one another, as shown in figure 3, another of Mr. Baumann's designs, in which a walk passes quite around a central oval bed, and other beds of various shapes are placed in the lawn at a little distance from the walk. Another way of planting in the ribbon style is to run a narrow bed along each side of a walk and plant it with two or three colors. It will be seen that these styles of flower gardening may be carried out in a single bed in the small lawn of a front yard, or may be extended to ornament the largest grounds. All planting of this kind has its beauty much enhanced when framed by the green of a well kept turf, and is seen to the best advantage when it can be looked upon from a higher level. An enumeration of some of the annual and other plants best suited for use in beds of the kinds we have here described, as well as notes on mixed planting, must be deferred to another month.

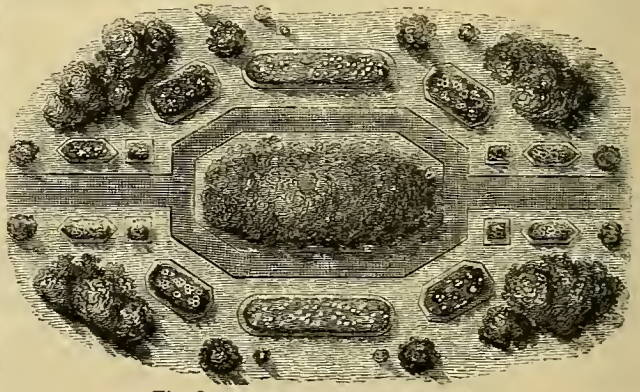


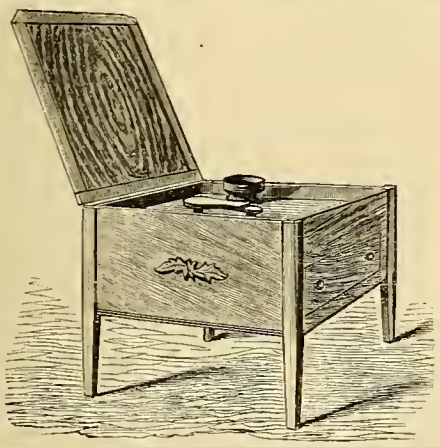
Fig. 3.—DESIGN FOR FLOWER BEDS.

THE HOUSEHOLD.

(☞ *For other Household Items, see "Basket" pages.*)

A Shoe-blacking Stand.

Well blacked shoes are a necessity, but the operation of blacking them is irksome, and the apparatus used is a nuisance in the eyes of the house-



SHOE-BLACKING STAND.

keeper. Hence the blacking and brushes are banished to some out of the way place, to which the one who would use them must follow them. The house-furnishing stores keep neat blacking stands, made like the one shown in the engraving. They are made of black walnut, and when closed no one would suspect their use. Upon lifting the lid we find a place for the brushes, one for the blacking, and a stand upon which to rest the foot while performing the polishing. Probably the majority of our readers do not find it necessary to black the boots in the house, but a stand of this kind, even roughly made, would be found a great convenience in the shed or other place, devoted to this part of the toilet. It would keep the brushes and blacking together, and free from dust, and prove a comfort in affording a foot rest of the proper hight. A person trying to black his boots with his foot in an inconveniently elevated position, shows himself in an attitude, the awkwardness of which is as amusing to others as it is uncomfortable to himself.

Bitter Butter.

Several have written in regard to bitter butter in winter, the communications being called out by an item which appeared in the "Basket" for December. The suggestions are essentially the same in all; we give one from Miss P. E. G., Lancaster Co., Pa., in which she addresses "G. W. S.," the correspondent who complained of bitter butter.

"You keep the milk in the cellar. The *Agriculturist* says, 'keep it at 60°.' Your cellar is probably quite as low as 35° during a part of the winter. Don't the potatoes freeze a little? ours do, without much care. The *Agriculturist* says: 'Keep both milk and cream where they will not absorb kitchen or other odors, especially smoke of wood fires, or of burning grease.' Dear me! What shall we do? Some of us, perhaps, can only afford one fire, and we make a dreadful smoke when we kindle it in the morning, and we fry sausage and mush for breakfast, and we boil pork and cabbage for dinner. What, then, shall we do with our milk? Answer—Make it *sour* before it can get bitter. In our region, the milk is sometimes kept in a cupboard, in the living room, or perhaps upon a table, nicely covered with a white cloth, or on the mantelpiece. This will make much better butter for you than your bitter milk. I have sold butter, in a city, at 65 cents, the milk for which stood in the broad kitchen window (where there was not a great deal of cooking), and was lifted occasionally to the mantel to sour. Don't let one pot be bitter. An experienced farmer's wife told me that one vessel of such milk would give churning a taste.

In the case just mentioned of my own churning, the quantity of milk was so small, that I was not able always to churn in a week, if I recollect right. I will suggest another way.—Try it.—Have standing a vessel of sour milk, or buttermilk, not *bitter* sour milk. When you strain your milk, add to each pot or pan, intended for butter, a little of this sour milk—a skimmer full, perhaps. Your milk will be sour, and see what beautiful cream will rise. I have seen milk managed in this way kept in the winter in a spring-house with unglazed windows. Perhaps you will not have quite so much cream as if you keep your milk in a warm room, but try the experiment. I have further heard of setting milk pots upon the stove, and bringing the milk to a scald before setting it away. This extra heat may cause the milk to sour, and prevent that awful bitterness, of which I speak feelingly. But make your milk sour before it is bitter, unless indeed you can make all the cream rise before it is either sour or bitter. The evening before churning, if you have a coal stove, bring up your cream pot, or pots, and set them near the stove. Do not try to churn cold cream unless your time hangs heavily on your hands, or your name is Job. If you have a thermometer, you can vary your cream to 60°, or perhaps 65°, by stirring in warm water. Be careful of your thermometer, and do not plunge it into water so hot as to break it. After you have done these things, dear Illinois butter-maker, will you not give us in the *Agriculturist* the result of your effort?"

Soothing Syrup—Poisoning Made Easy.

There are mothers who use "Soothing Syrup" in perfect ignorance of its dangerous character. If it were labeled "Syrup of Morphia—Poison," as it should be, but very little of it would be sold. It ought to be very "soothing" indeed, if, as is stated in the California Medical Gazette, it contains very nearly a grain of Morphia to the ounce of syrup, and that the dose for a child three months old is equal to 10 drops of laudanum. It is ascertained that about 100,000 bottles of this stuff are sold annually in San Francisco, and it is also stated that one-third of the babies there die before they reach the age of two years. It seems to us most strange that a mother should give a child a medicine of any kind of the composition of which she was ignorant, unless she received it from the hands of a trusted physician. Years ago when certain worm lozenges were so popular that "children would cry for them," we made an analysis of them and found a good dose of calomel in each. Let secret remedies alone.

Washing Fluids Again.

Since last month's paper was made up, replies to our request for receipes for washing fluids have continued to pour in. It is, indeed, very gratifying to know that so many housekeepers are ready to assist their—what in view of washing-day we may well call—fellow-laborers. Some manufacturers of washing fluids and labor-saving soaps, have sent us samples of their goods, and some correspondents have written to recommend this or that soap or liquid. Those who have such preparations for sale can set forth their merits in the advertising columns, our object being to get some cheap and useful preparation that every one can make. Three-fourths or more of the recipes that have been sent, were the soda solution given last month, and the writers agree in assuring us that it can be used without injury, as the clothes require much less rubbing than when washed without it....Here is another which several have sent, though the proportions of the ingredients vary. Sal Soda and Borax, ¼ lb. each; Gum Camphor, 1 oz.; Alcohol, ½ pint. Dissolve the soda and borax in one gallon of boiling rain-water, pour in two gallons of cold rain-water, add the camphor first dissolved in the alcohol, stir well and bottle for use. Four tablespoonfuls of the preparation are to be mixed with a pint of soft soap, and the clothes boiled in a suds made of this. It is all the better if the clothes are soaked over night, before putting them into the suds. We do not quite see what use the camphor can be in this preparation, though a solution of camphor and alcohol will dissolve some resinous substances that alcohol alone will not dissolve.... One lady adds a tablespoonful of Saleratus to the boiler of suds, which is no improvement over the generally used sal soda....Another uses a mixture of Turpentine and Camphene, 1 pint each, and Ammonia, 4 oz. Three tablespoonfuls to a pint of soft soap, used in the first suds. Camphene, fortunately nearly out of use for burning, is only a very pure kind of spirits of turpentine, and the mixture is really only turpentine and ammonia.

Scouring Knives.—Miss H. M. S. says: Place a quantity of brick-dust on a board, and having the knife perfectly dry, press it down hard and rub it back and forth *crosswise of the blade*, when bright, turn over and scour the other side. Then wipe off with chamois leather. Knives thus treated will retain their brightness much longer, and have a *new* look after years of usage.

Household Talks.

BY AUNT HATTIE.

The fact of it is, I have not had time. Three months ago I sent Peggy away, and have not been suited with any servant since. I said something about Peggy in a previous "talk." She had lived in Ireland with her mistress for thirty years. About two years since Mr. Jackson died, and the farm had to be leased and their effects sold. The family, finding themselves quite reduced in circumstances, sought a home in this land of refuge. They tried to induce their old servant to stay in Ireland, but in vain; she determined to follow them wherever they might go. They went first to Canada, and Peggy had to work in another family for the first time in her life. The family afterwards moved to the States and left her behind. She was unhappy, and finally followed them here. Mrs. Jackson recommended her, for being faithful, excellent with young children, and possessing the rare virtue of never wanting to go out except once on Sunday. She was old, but neat in her appearance, and from her conversation, gave me the impression that she would be quite willing to learn anything, and that she lived only at my service. "Hattie," said the Doctor to me, when I had enumerated her qualifications to him, "you are fixed now, if you are wise; an old servant is what every woman with a family should have, and I hope you will not send her off for any trivial offence. Mark my word, these young girls are never to be trusted with children." I took the Doctor's advice kindly, especially as I felt confident that there was no difficulty in carrying it out to the letter. But, alas for human anticipations. Peggy had not been with me a month before I was tired of her. She could neither cook, bake, nor set a table. She could not, and I could not teach her to, do up Edward's shirts and collars, or any of the children's or my fine clothes, and I had to direct her in all she did. I tried to teach her to make bread, but she simply said she never had baked a loaf in her life, and she thought she was too old to learn now, so I had to bake the bread, pies, and cake, and help to set the table always. I had to cook beefsteaks, chops, and joints; in fact, I considered her incapable of completing anything she undertook. If she minded the baby, she did it faithfully and well—feeding him, tossing him, walking around with him—anything to amuse and keep him quiet; but the rest of the children might have been in Van Dieman's Land for any knowledge she would have been capable of imparting as to their whereabouts. In short, I found her to be the most one-thing-at-a-time person I ever saw. "Peggy," I said to her one day, "when you lived with the mistress in Ireland, what kind of work did you do?"—"Well, ma'am, Mistress Jackson had a large farm, and an illegant stone house, and it was not the likes of me that would be after sweeping her fine carpets and bedrooms, so I jest attended to

feeding the chickens and calves, and washing the dairy pans." Peggy lived with me for two months, when I heard of a situation that I thought might suit her. She went, but only stayed one week; she afterwards lived with a sister of mine, who found her the same faithful, simple-minded, quiet person, but as her work consisted of up-stairs nursery, dining-room, and kitchen, the same difficulty was experienced as with me, and she left there also. For some weeks past Peggy has been living in a large seminary for young ladies, where I fancy she finds work suited to her exactly—washing vegetables and dishes on a large scale, requiring little ingenuity, and hardly any responsibility. The Doctor speaks from experience when he says an old woman for a servant is a good thing. He has living with him now a person who, within my recollection, has always been associated in my mind as old Jane; why so, I do not know, for she does not appear like an old woman, even now; perhaps the title is given to her as significant of her stability, uprightness, and maturity of thought and judgment. She would be a treasure in any family. I might challenge the town for a better bread and pie maker, or a better cook or housekeeper. Jane would be dreadfully mortified if the Doctor should come home to dinner and find it not ready. His candle, which he needs in the evening for attending to the furnace, is always ready. The water pitcher is always full, the kitchen is always clean, the steps are always clean, and her work appears always done, so that she is ever ready and willing to do any thing extra required. Give me such a servant as the Doctor's wife has, and I should have time to do my own sewing, to visit, and to write punctually my Household Talks.

"Any soap-grease to-day, ma'am?" "No, sir; I use my own soap-grease." "Make your own soap?" "No, sir." "How do you use your own soap-grease, then?" "I make it into eggs," I said, smiling. The man looked so astonished and half frightened that I thought it time to explain. "I feed the grease and fat which is unfit for cooking to the chickens."

The baby is cutting its teeth, and is at times so cross that it is difficult to amuse him, and sometimes on this account I am half tempted to regret having sent Peggy away. Although the weather has been quite cold, I take him out every day, sometimes in his little carriage; and when snow is on the ground, I take Willie's sled and fasten a box on the back part, spread over a small Afghan, and give him a delightful little sleigh ride.

This afternoon, while out with baby, I met a German or Holland woman. A good chance to try to get a girl, I thought. "Do you live around here?"—"Yaw; yust in Brighton." "Do you know of a girl to work?"—I shouted, (you always shout when speaking to a foreigner). "Yaw, yaw, a good one; you want one good one?"—"Yes," I said, "a large girl, to do anything—take care of the baby, wash, and iron." "Oh, yaw, she good girl; she wash, she iron, she mind the baby. Oh, she good girl, yaw; she fat." "Is she German?"—"Oh, no, she no German, she Hollands. Oh, she good, she fat." "When can I see her?" I said. "Yaw; I brings her round de day after yesterday." "To-day?"—"No, no to-day; yesterday I goes to wash for Mr. Calver. I can no come, but I prings her the next morning day." "Day after to-morrow?" I shouted. "Yaw, yaw, that is it; the day after to-morrow. I prings her; she clean all up for you; she no Irish; she no German; she Hollands. Oh, she be good; she fat."

When I came into the house I found the sitting-room fire nearly out, a very few coals only alive. To have put a large quantity of coal upon so small a fire would have extinguished it at once, so with the tongs I put on gently six or seven small lumps of coal; in about ten minutes I put on a shovelful, as it was now burning nicely, and I have just put on the usual allowance of coal for a good fire. How often I have had the fire put out by the girls pouring in a large quantity of coal when it was low.

Economical Cooking—Something out of Nothing.

BY FAITH ROCHESTER.

It is a favorite axiom with my father that "You can't get something out of nothing." I have sometimes felt that my experience in household matters almost proved the contrary. Perhaps few readers of the *Agriculturist* know what it is to be *too poor to economize*. It is such poverty as compels Nellie Kay to wear an old silk dress to school this winter. The mothers of her playmates think a good calico frock would be far more suitable, considering her father's circumstances, or suggest to each other that a warm flannel dress would be better and cheaper than anything else. Alas! At Nellie's house there is not a penny to be spared for buying any sort of a new dress, and every possible old dress of her mother's has been made over for her, until there is nothing left but the old silks of better days. They are learning the sad meaning of debt and interest, and are too poor to economize.

Taking health and contentment into account, as well as money, it is the best economy, under ordinary circumstances, to use a liberal diet, consisting largely of fruit and the finer grains. I think people are more likely to eat to excess habitually, after a few scanty and unsatisfactory meals, than when there is little variety in their fare from day to day. The stomach seems to be constantly unsatisfied and takes more than a proper amount in the effort to get what it craves but cannot find. There are lean times in the cupboards of so many homes, that I purpose to reveal a few secrets once taught me by a severe old schoolmaster named Experience.

When the cow has gone dry, and the stock of butter is getting low, and the hens don't lay, and the fresh apples are nearly or quite gone, and (worse than all, perhaps,) the family purse is very, very lean—then what shall a body do? Receipt books are very unsatisfactory at such times.

Most people use lard and even pork-fat for shortening. Some of us do not. Any kind of shortening needs to be carefully used or it will become an abomination. It is not so essential an article in cooking as many imagine. Of all kinds I give the preference to sweet cream. Pie-crust made with lard is whiter, but made with cream it is more wholesome. I have heard of shortening pie-crust with beans, but have never tried it. People *can* keep alive without pies, especially if they can get

Dumplings.—Good crust for various kinds of dumplings may be made of a part of the dough when baking bread. It may be rolled out thin and wrapped around the apples, previously pared, quartered and cored, or cored without quartering, one in each crust. Leave the crust very thin under the apple (or it may be heavy), and when made let them rise a little before going into the oven. Bake slowly. Or, pare, quarter and core fresh apples, and put in the bottom of a dish with a little water (dried apple sauce is better than nothing, if fresh apples are wanting,) and cover with a crust of bread dough. It should rise a little before going into the oven, and then bake slowly. Graham mush is not a bad crust for such a pudding, and boiled rice makes a pretty cover when browned by the baking....Or bake a thin loaf of bread and split it open when done, and spread each half on the split side with canned or stewed fruit, or fresh berries in summer, placing one above the other. It is better, but not necessary, to spread the halves first with butter.

Apple Jonathan differs from the other dumplings chiefly from being made in a pot or kettle. I first made its acquaintance under the name of "Pot apple pie." Invert a plate in the bottom of the pot. Put in sliced or quartered fresh apples. Pour over them maple molasses if you have it, if not, add sugar enough to sweeten well. Add a teacup of water and nutmeg or allspice. Over this around the ridge of the pot put strips of crust, cover tightly and boil over a moderate fire. [This is what is called "Pan-dowdy," in some parts of New England.—Ed.]

Steamed Bread and Butter Pudding.—Place slices of bread and butter in the bottom of a pudding dish, a layer of sliced apples with sugar and nutmeg, another layer of bread and butter, then one of apples, sugar and spice, until the dish is full, having bread and butter at the top, buttered side down. Cook thoroughly in a steamer.

Pudding Sauce.—Cream sweetened and flavored is a favorite dressing, and maple syrup is beyond praise; but when cream is scarce and maple syrup lacking, good sauce may be made after the receipts given in the last volume of the *Agriculturist*, only plainer as one's necessities require....For bread hastily made nothing can surpass

Gems.—They are cheap, easily made, wholesome and palatable. Graham flour and water are stirred together to the consistency of a thick pancake batter, and baked in the iron or tin gem-pans. Everybody should have these bread-pans. Gems, whether of Graham meal, fine flour or corn meal, should be put into a *hot* oven. Success depends on this. Fine flour and sweet milk (skimmed milk is good enough), well beaten together, rather thicker than the Graham batter, makes a very sweet and good kind of warm bread. Corn bread of the best kind can be made without eggs or shortening, or sweetening. Simply scald the meal with boiling water, add a little salt, stir well and bake quickly in the gem-pans. We thought the Graham and white gems must have salt, until we found that its absence was not observed, and then we discarded it, as it seems an unreasonable amount of salt is eaten under the plea of a *little* salt being necessary.

Cake.—This is not one of the necessaries of life, but good cake is seldom refused. There are a few ways of making it quite cheaply and satisfactorily.

Bread Cake of every grade is good if carefully made. The regular receipt as given me by a dear old playmate, reads: "One and a half cup of dough, one cup of sugar, one-half cup of butter, two eggs, one-half teaspoonful of soda. Raisins and spice to suit the taste. Mix with the hands until the dough seems thoroughly worked in, adding a little more flour if the dough is thin. Let it rise half an hour. It rises slowly and but little before going into the oven." This is very nice. We have eaten it with a relish when minus eggs and raisins, and with only a tablespoonful of butter, and a little clove, cinnamon or nutmeg for flavor.

Bachelor's Cake is plain and good. "One and a half cup of sugar, one cup of milk, two tablespoonfuls of butter, two eggs, one teaspoonful cream of tartar, one teaspoonful of soda, three cups of flour." This makes two loaves....A queen among women, once treated me with cake made as follows: One cup of sweet milk, one cup of sugar, two cups of flour prepared with Horsford's powder. The loaf was split and the halves spread with canned strawberries, and one half laid above the other.

Plain Rice Pudding.—Half a pint of rice, one quart of milk, half a pint (or less) of sugar, nutmeg or cinnamon. Bake it slowly two hours. Tapioca may be cooked in the same way, after soaking in warm milk for an hour or two; and Sago, after thoroughly washing and soaking over night, is good in the same fashion. It is possible to dilute the milk one-half and yet have the pudding good, if care is exercised in soaking and cooking.

Soap.—It is convenient sometimes to know how to make soap quickly, when there is little grease and no leach set up. Make a white ley by boiling wood-ashes with water and pouring off the liquid after it has settled. When this ley is boiling, add all the grease (previously tried out—lard or tallow, or drippings) it will "take." Boil it together, trying frequently a little in a saucer, until you find it thickens as you stir it, and it cools. If you cannot make it "come," add a little water to a small quantity in your saucer. If that thickens it, do the same with that in the kettle. If not, try adding ley to a portion, and then to the whole, if that makes the small portion tried "come."

All the above is written for the benefit of those who know what it is to be "in a pinch." I don't envy those who have never had that experience. It quickens the wits and deepens the sympathies, but it is not a good way to live—long at a time,

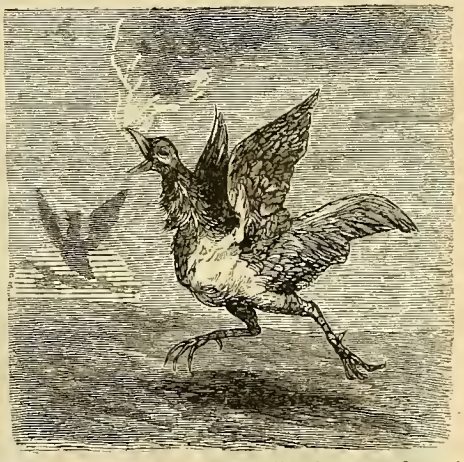
BOYS & GIRLS' COLUMNS.

Rambles in China.—Carleton's "First Story" was so interesting that, no donbt, yon all look for more accounts of the Chinese this month. Carleton has written, according to promise, and has told some funny things about the odd people, which we thought would be all the more interesting, if they were illustrated; so we keep his letter until another month, which will allow the engravers time to make the pictures.

The Doctor's Talks—About Ice.

The boys had come in from skating one cold night, and as they were warming their half-frozen feet, Walter said, "Uncle, show us an experiment."—"You and Arthur are old enough to make experiments for yourselves, and you will learn much more from them than if you merely see them done."—"But," said Arthur, "the curiously shaped glasses, and the acids, and the chemicals you keep all locked up out of our reach, and we can't make any bright lights, great explosions, and what Mother calls horrid smells—but I like them—without these,—come, let us have some beautiful experiments."—"You boys are much like many older people, who think that apparatus makes a chemist. One of our professors used to either blind or deafen the class by his bright lights and noises, or else make the room so unpleasant as to keep us all coughing. There was a great deal of display, and very little instruction. Some of the most interesting phenomena can be shown by the use of very simple means. You are too tired for experiments to-night, but we will prepare for one. In my closet is an empty stone ink-bottle. Get this, fill it with water, cork it, and set it outside on the window-sill. The stronger the bottle the better for our experiment."....

The next morning, after breakfast, the boys were told to go and bring the bottle; they soon came, with long faces. "Uncle," said Walter, "the bottle was not strong enough; the water all turned to ice, and the bottle is broken from top to bottom; why didn't we get a stronger one?"—"Had the bottle been of iron it would have broken just the same, but the experiment has succeeded. The water in freezing expanded, took up more room as ice than it did as water, and in so doing, exercised sufficient force to break a heavy stone bottle."—"Is that all?" asked the boys, who were evidently disappointed, "that is no sort of an experiment, and isn't even worth wasting the ink-bottle for."—"I thought," said Arthur, "that you were going to show us something interesting. Even if ice does take up more room than water so much the worse, as it is always bursting water pipes, and doing other mischief." Arthur is a very pleasant boy, excepting when he is in a dissatisfied mood, and then nothing is better for him than a little ridicule. "How wonderful is it to see such wisdom in youth, and what a pity, Sir Arthur the Little, could not amend the laws of nature. One of his first acts would be to direct that water should contract in freezing, and not expand, as at present. His highness does not want any more skating, or any more fishing." "Stop, Uncle," said the boy, quite over his pet, "what has the expansion of the water to do with skating and fishing?"—"A great deal; and if you are in a teachable mood, we will see. Most substances contract as they cool, and so does water until it gets down to near the freezing point (39°), when it stops contracting and begins to expand. Now, what is the effect upon the pond where you skate in winter, and fish in summer? When cold weather comes, the water at the surface cools, and, as it contracts it becomes heavier, and sinks, and the lighter and warmer water from below takes its place, and this keeps going on until all the water in the pond is cooled down to 39°. After this, the surface water, instead of growing heavier, expands, and becomes lighter, and remains at the surface, and when it becomes cold enough to freeze, it expands still more, and the ice being lighter than the water, remains at the surface, and protects the water below from freezing to any great depth." Walter, who had been attentively thinking over the matter, said—"Now, I see how it would be if Arthur had his way. If the ice were heavier than the water, it would keep on sinking as fast as it froze, and we could not skate until the whole pond was frozen solid."—"Yes, and if it did freeze solid," said Arthur, "all the perch and pickerel would be killed. I think, upon the whole, that I could not better the matter even if I had the power; and the bursting of water pipes and such things by freezing is a small matter compared with the good which comes from this expansion by water in freezing."—"There are many silent agents at work, boys, for our good, which we hardly notice, and one of these is the force exerted by the change of water into ice. When the water cask freezes and bursts the hoops, or the water in the bottle becomes solid and breaks it into fragments, then the force shows itself in such a manner as to strike the attention. But the freezing of the minutest drop exercises irresistible force, and it is by this power that the rocks are being crumbled and powdered into soil. Water finds its way into unseen crevices and pores of the rocks, and then, as it freezes, throws off small particles that make up a good part of the soil upon which the plants grow. The work is very slow, but it is continually going on."—"How much does the water expand in becoming ice?" asked Walter. "This piece is scarcely bigger than the inside of the bottle in which it froze."—"It occupies about one-eleventh more space as ice than it did as water, which is sufficient to cause it to float, but as it is so near the weight of an equal bulk of water, it only shows a small part of its thickness above the surface. Those huge masses of floating ice, called icebergs, which come from the far north, are sometimes two or three hundred feet high above the water. Even then only a small portion of the mass is visible, as only one-seventh projects above the surface. There are other curious things about ice, and snow, which is only a form of ice, but our time has expired for this morning."



No. 370. *Picture Conundrum.*—Why is the unfortunate animal in the right hand picture, like the scene shown in the picture on the left, where the rascally wreckers are enticing a ship to a dangerous shore by means of a false light?

Home Games.—Throwing Light.

"C. L. P.," Cambridge, Mass., sends the following:—This is a game adapted to any number of persons, old or young. One of the party calls to his mind a word, which is used with several different meanings, as for example, the word *Pole*, which means a long, slender piece of wood, the stem of a tree, the pole of a carriage, the May-pole, the bean-pole, a measure of lengths, one of the extremities of the earth's axis, a magnetic pole, a native of Poland, etc., etc. He then begins to *throw light* by describing the word. He says aloud, "I am thinking of something which is found in the woods; it is rather long and slim; it may be seen in the street as part of a carriage; it is an emblem of liberty." As soon as some one thinks he has guessed the word, *he* begins to throw light for his companions, saying it is the name by which some people are called, or people use it in measuring, thus adding any information he can, which the leader confirms or denies, according as it is correct or false. One after another thus guesses the word thought of, and when the story is all told, the word at last is announced, and a new one is selected. This game is entertaining, and at the same time very instructive, not only enabling one to acquire an extensive vocabulary, but also developing in young people a wonderful facility in expressing one's thoughts to advantage.

A young lady just from boarding-school wishing to borrow a friend's thimble, asked for her "Diminutive truncated argentine cone, semiperforated with symmetrical indentations." This is about equal to the definition of net-work, which is given in Johnson's Dictionary as something "reticulated and decussated with interstices between the intersections."

The Prize Poodle.

It is not easy to understand why deer, ponies, cats, and dogs, are invited to show themselves at a poultry exhibition. The N. Y. State Poultry Society gives premiums for all these, besides those for poultry, and in December last they had a great show. There was a band of music, but it had but a poor chance in opposition to the "music of nature," which made itself heard in the greatest crowing, cackling, gobbling, quacking, neighing, mewing, and barking, that I ever heard. The birds were very fine, but I thought the animals with four legs quite as interesting as those with two. You can't pet roosters and ganders, which seem to know one person as well as another, and who have no liking for anything that is not eatable. The deer will become quite friendly, the pony soon learns to know persons, cats show affection after their way, but the dogs! they seem to have more sense than all the rest. I can't say that I petted the Russian blood-hound much, he looked as if such attention would be thrown away on him, but there were a plenty of pleasant little fellows there, and it was curious to see the different expressions, with which they would regard spectators. There was one dog which at first sight looked like a sheep-skin mat rolled up. I was told that this had taken the first prize as a trained dog. It was a Spanish Poodle,

THE TRAINED POODLE "SPORT,"

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THE PIONEER OF THE TRAIN.—DRAWN BY W. M. CARY.—*Engraved for the American Agriculturist.*

with long, white, silky hair, and a countenance expressive of nothing in particular. Presently his owner, Mr. R. W. Dodd, of Brooklyn, came along, and we were soon shown that this was a dog of remarkable accomplishments. Not only could he do all the common tricks "without trying," as the boys say, but had progressed as far as to spell in words of two syllables, and to do sums in simple addition. No, I don't mean "how-wow," by words of two syllables, for he does his spelling in the most quiet manner. The owner has letters of the alphabet, each one on a card; these are laid out in a semicircle, and the dog is told to spell a name—Henry for instance. He walks along with his attention fixed upon the letters until he comes to H, which he takes up and lays by itself, then he starts again to examine the letters and when E is reached he picks that up and puts it by the side of H, and so on until the whole word is spelled out. Cards containing figures instead of letters are then laid down, and the dog is asked, "How much are six times twelve,"—he selects the seven and the two, and places them side by side, and does other simple sums.

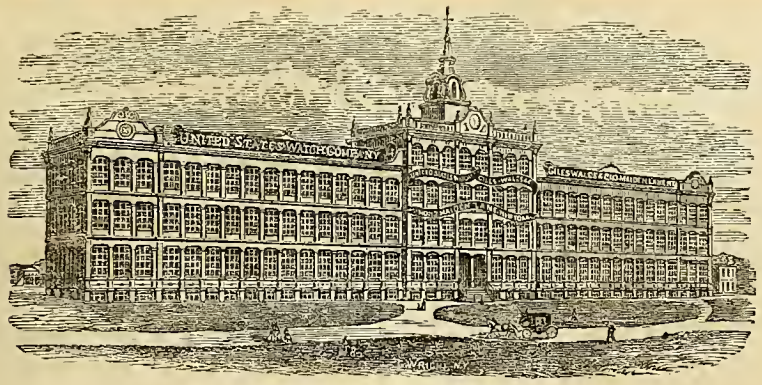
You probably think that is a remarkable dog. So I thought, and got his photograph for the engraving.... "How is it done?" Easy enough; how do you spell Constantinople, or solve the problem, 'If an apple and a half cost a cent and a half, how much will two apples cost'? If a young child can do these things why should not an old dog do things which are much easier? "You know that a dog *can't* spell and cypher."—I have told you that I have seen him do both...."But there is something you haven't explained, some trick about it,".... So there is. I am glad you like to know *how* things are done. The dog is trained to go from one letter or figure to another, and at a signal to pick up the proper one. This signal is given so adroitly and the dog's senses are so acute in heeding it, that of the thousands who have seen the dog perform, but few have discovered how it was done. Most people watch the dog, I watched the master. I noticed that he always held a hand behind him, and thinking that hand had something to do with the spelling, I watched it. As the dog came to the right letter the thumb-nail moved against one of the finger-nails and made the slightest possible *click*, loud enough for the sharp ear of the dog to hear, but not loud enough to be noticed by the spectators. So after all, it was the man, and not the dog, who spelled and cyphered, still it was wonderful to see how acute the dog was, and how well he had been trained to do his part. WILL WARREN.

The Pioneer of the Train.

To a great many of our Boys and Girls this picture will need no explanation. They have seen the trains go by, the men on horseback or walking, the children in the huge wagons with the furniture, the old women knitting, the younger ones often on foot, all moving at the slow pace of the patient oxen—where? To the West. Every year finds these trains going farther and farther west, carrying families by the hundreds, and many a little one will read this in States which were not known, by name even, when the writer studied geography. What courage have these people who take all their movables and leave older settlements to go to a new country and make a new home! What days of weary travel, what discomforts with but a wagon, or it may be a tent for a house, what deprivations of food, what sufferings when sick, these brave travelers must experience—can only be told by those who have had a part in them. Generally the guidance of the train falls to one who has had more experience in such matters than the rest. Indeed it would seem that there were some men especially made for the very purpose. The guide or pioneer has a wonderful knowledge of everything about traveling or camping. He will see further and make out an object quicker than most men. If he has been over the country before—years ago it may be—he will remember every feature, and if he travels a route for the first time, he seems to know just where to go to find the best camping places. He appears to never get tired, and never to lose courage. The artist has drawn a fine portrait of one of these hardy characters. Far in advance of the train he has gained the top of a swell in the prairie and casts a long look forward in search of signs of water. Let us hope that the indistinct line which he sees is a belt of Cotton-woods indicating water, and that soon the tired travelers and their animals will reach the long looked for camping place. In the bustle of preparing supper, and in the enjoyment of eating it, the long and tedious road they left behind them will be forgotten. So on the train moves, on, day after day, until the place is reached where the new home is to be.

Answers to Problems and Puzzles.

No. 367. Because he sins (he's in S)....No. 368. A little continually increased by a little, ends in a great deal—A little c on tea in U le in creased bec Y A little ends in A great D eel....No. 369. 'Tis now the witching time of night when church-yards yawn. Tie S now tea he witch in G time of night W-hen church-yard S Y three feet and 3 inches (the three feet 3 inches are intended to stand for anne, an old French measure). The following have sent correct answers: Theo. Wilson, F. S. Ingalls, W. A. McLawn, Arthur Moffatt, G. D. Bunyan, Chas. D. Waterbury, N. Brenner, J. R. Downing, Horace Beakes, Moses D. Yoder, Alvey L. Hemingway, Job P. Sylvester.



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WILLARD DERBY,
Of Derby, Snow & Prentiss, Jersey City, N. J.

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A. L. DENNIS, President N. J. R. R. T. & T. Co.

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F. A. HASKELL, Con. Hudson River R. R.

WATCH No. 1117—bearing Trade-Mark "Frederic Atherton & Co., Marion, N. J.," manufactured by United States Watch Co., has been carried by me fifteen months; its total variation from mean time being only an average of two-thirds of a second per day.
B. F. PHELPS, Con. N. J. Central R. R.

WATCH No. 1037—bearing Trade-Mark "Frederic Atherton & Co., Marion, N. J.," manufactured by United States Watch Co., has been carried by me since June, 1867; its total variation from mean time being only five seconds per month.
HENRY SMITH,
Treas. Panama R. R., 88 Wall St.

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Pass'gr Ag't Toledo, Wabash & Western R. R.

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E. RICE, of Whitney & Rice, 179 Broadway, N. Y.
SUNBURY, PA., Feb. 26, 1869.

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Engineer Phila. & Erie R. R.

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SAFE LIGHT FOR OUR HOMES

See Second Cover Page.

FRUIT-FARM for sale, near Burlington, N. J. 12 acres, mostly in Small Fruits in full bearing. All in complete order. Splendid buildings. Owner has other business. Only $1,500 cash required. For full particulars address the owner. E. E. PADDOCK, Box 614, Bridgeport, Conn.

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Our stock is immensely large, of one, two, and three-year-old bushes, and includes the best varieties, true to name. See our Price List for spring of 1870. Sent free.
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Box 153, Pittsburgh, Pa.

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The best for market, for *firmness, size*, and *flavor;* the Parnell received the Silver Cup of Cincinnati Hort. Society. Apply with stamp to LOUIS RITZ,
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We are informed that some Watch Dealers are misrepresenting the quality of our watches in the interest of other watches on which a larger profit is made, we desire to call the attention of buyers to certain facts which should inspire renewed confidence in the superior qualit and unrivaled cheapness of WALTHAM WATCHES. We have an experience of sixteen years, and our advantages are the natural result of the precedence we acquired in the trade and the proportions to which our manufactory has attained, making now twice as many watches as all the other manufacturers in this country combined, and as no industrial law is better established than that which cheapens the cost of an article in proportion to the magnitude of its production, we are enabled to offer our watches at less rates, quality for quality, than any others made in this country.

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We have the best workers in every department that are available, and with machinery perfect and ample, we make by far the finest grade of watches made in this country, surpassing all other American watch manufacturers by our ability to offer buyers the largest variety from which to select any style that may be required.

Our watches have long been the leading article in their line, and are sold by nearly all respectable jewelers at a moderate profit.

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Not satisfied with copying our trade-marks as nearly as they dare, the Swiss manufacturers send large numbers of their refuse to this market marked "Union Watch Co.," "Massasoit Watch Co.," and "Great Western Watch Co.," and other deceptive American names. Any dealer who recommends these watches as genuine American Watches means to cheat if he can, and when represented to be as good as the genuine the object is, of course, to sell them for three or four times their real value.

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All of the above are of my own raising, each grown isolated, scattered over three square miles of territory. Catalogues free.
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SECURE A HOME.—The best Fruit and Garden lands for sale, in a mild and healthful climate, 30 miles from Philadelphia. Good Markets and Society. Pure soft water. Price, 30 dollars per acre, payable ¼ cash, balance in 10 years. A rare opportunity. Thousands are settling.
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This is the title of a very thorough treatise that I have written, giving all the minute details so invaluable to the beginner. It treats on selecting and preparing the soil, preparing and applying the manure, the best varieties to raise, (illustrated by fine engravings), the hoeing, cultivating, and the protection of the plants from their insect enemies, how to market, and how to keep over winter, and on other subjects.—Also, my treatise on "ONIONS, WHAT KINDS TO RAISE, AND HOW TO RAISE THEM," and "SQUASHES; HOW TO GROW THEM." Either of these will be sent post-paid, to any address, for 30 cts. I intend that each of these Treatises shall be the most thorough of their kind published, and I believe the public will find them to be decidedly so.

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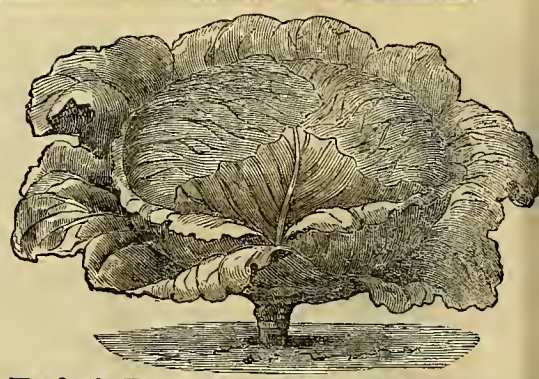

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No variety will produce more weight of solid heads to the acre, and as a reliable and profitable variety for Market Gardeners, it is unequaled. WE WARRANT every Seed to grow under favorable circumstances, every plant to produce a solid head. Price $5.00 per pound, and 40 cents per ounce. Address ROBERT BUIST, JR.,
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True Broad-leaved Sage Seed, grown by the famous Danvers growers who raise Sage by the acre. *Warranted growth of* 1869. Price—10 cts. per package; 35 cts. per oz.; $1 per ¼ lb.; $3.50 per lb. *Sent by mail, post-paid, with full directions for cultivation. Catalogues free.*
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Fine Gladiolus and Spring Bulbs. "Much the largest packets for the price I have seen for some years," wrote Mr. Geo. Faulkner, of Flemingsburg, Ky. "Good as the best, and cheaper than the cheapest." (T. B. Shepherd, Mannsville, N. Y.) Catalogues, "*Illustrated*"—*with low prices—free.*
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SEEDS and FERTILIZERS.—Best Garden Seeds sent by mail or express. Pure Fertilizers delivered in New York. Send for Circulars, address EASTERN SEED & FERTILIZER CO., Hartford, Conn.

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The Japanese Queen of Lilies.

A large importation from Japan, just received by the subscribers, in fine, healthy condition. Flowering Bulbs mailed to any address at following prices:

No. 1, $1.00 each; $9.00 per doz. No. 2, 75 cents each, or $6.75 per doz. No. 3, 50 cts. each; $4.50 per doz. Prices by the hundred or thousand will be given to dealers upon application.

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Marblehead Mammoth Cabbage!

This is the largest cabbage in the world, sometimes weighing over sixty pounds each, and averaging as high as thirty pounds by the acre! It is not only large, but cannot be surpassed for reliability for heading, tenderness, and sweetness. As some cultivators have an impression that this cabbage cannot be fully matured outside of Marblehead, I invite their attention to the following extracts from among the many commendatory letters which I have received.

"Your Marblehead Mammoth Cabbage cannot be excelled. There were heads weighing 50 lbs., and heads of Fottler's Improved Brunswick (from your seed) weighing 40 lbs.—John H. Howlett, Charlestown, Ill."

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John Van Wormer, Springs' Mills, Mich., raised some weighing 30 lbs. John Humphreys, Titusville, N. Y., 33½ lbs. M. D. Clark, Elyria, Ohio, 37 lbs. H. A. Terry, Crescent City, Iowa, 40 lbs., measuring 56 inches around the solid head. Thos. A. Lambert, Becancour, C. W., exhibited three cabbages weighing respectively 40, 42½, and 44 lbs. John W. Dean, St. Michael's, Md., has grown them weighing 33 lbs. S. M. Shuck, Preston, Minn., 33 lbs., when trimmed. E. H. Ellis, Etna Green, Ind., over 30 lbs. A. E. Garrison, Des Moines, Iowa, 30 lbs. James S. Allen, Union Springs, N. Y., 30 lbs., when stripped of loose leaves. Wm. Lee, Jr., Denver, Colorado, has grown heads weighing 45 to 50 lbs., as a penalty for which the miners of the mountains call him the "Big Cabbage Man." Leonard Choat, Denver, Colorado, raised one which weighed 46 lbs. when trimmed of waste leaves. Collins Eaton, Ogdensburgh, N. Y., 50 lbs. P. Sweeney, Loretto, Pa., 43 lbs. Sam'l B. Ornsbee, Rolling Prairie, Wis., 53 lbs. Chas. W. Oden, Little Sioux, Iowa, produced quite a lot weighing from 50 to 60 lbs. A. C. Van Tassal, 39 lbs. trimmed. A. C. Goodwin, Kennedy, N. Y., 45 to 50 lbs. W. H. Spera, Emphrata, Pa., raised fifty heads that averaged over 31 lbs. each. Wm. D. Munson, Burlington, Vt., raised some weighing 46 lbs. Mary B. Sellman, Galesburg, Iowa, 28 to 43 lbs. stripped of loose leaves. Hundreds of others have written me that they have "taken all the prizes at the County Fairs." "Raised the largest cabbage ever seen in the country." "Astonished all their neighbors." "That in sweetness, crispness, and tenderness, they were unequalled," etc., etc. As the original introducer of the Mammoth Cabbage, I am prepared to supply seed grown from *extra large heads*, at following prices, by mail, post-paid: Per package, 25 cts.; per oz., $1; 4 ozs., $3.50; per lb., $12.

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See Second Cover Page.

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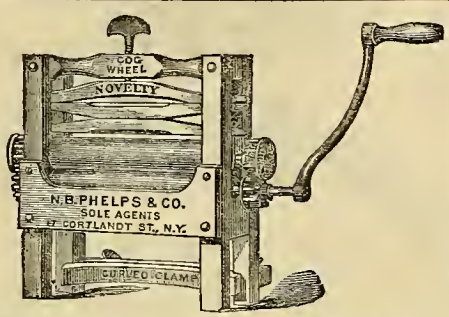

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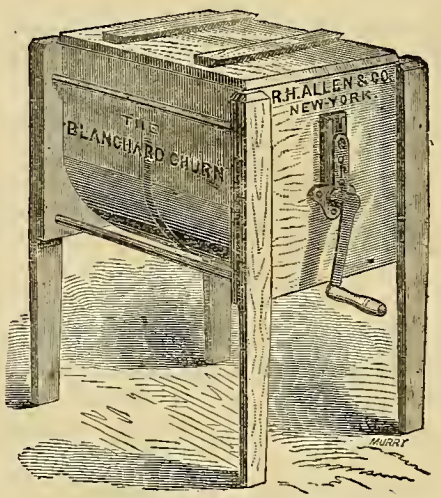

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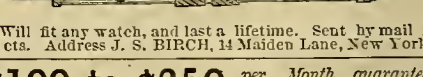

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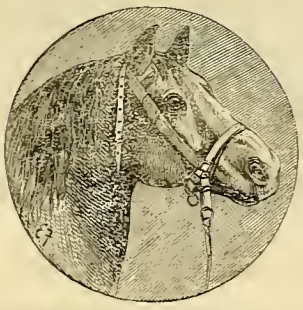

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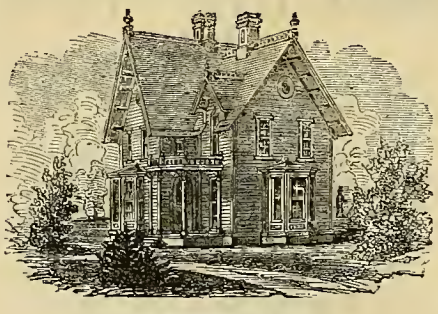

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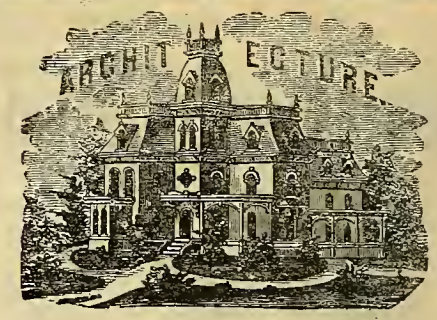

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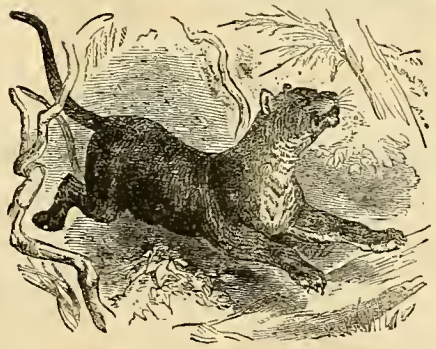

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31 and 33 Vesey Street, New York.

Gentlemen:—Business, and a want of opportunity, have for the last eight months prevented me sending, or rather attending to our monthly club, whose orders I sent you regularly for about a year previous. Since that time many indeed have been the solicitations by many of the members, that I should once again commence and send club orders—for, as some declared, they had got *no Tea*, no matter what the price paid, since I quit sending the club orders. I have, therefore, at the urgent request of a few, resolved to send you a small order monthly, and as a beginning send you the following:

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1½	English Breakfast	Jas. Reside	at	1.20....1.80
2	English Breakfast	John Runcie	at	1.20....2.40
2	Uncolored Japan	Wm. Ross	at	1.00....2.00
1	Imperial	Wm. Ross	at	1.25....1.25
1	Young Hyson	Wm. Ross	at	1.25....1.25
1	Oolong	Pat. McGerrity	at	1.00....1.00
2	Imperial	John Larken	at	1.25....2.50
1	Oolong	Wm. Duffie	at	1.00....1.00
4	Young Hyson	Thos. Conners	at	1.25....5.00
6	English Breakfast	Robert Barr	at	1.20....7.20
2	Uncolored Japan	John James	at	1.25....2.50
3	English Breakfast	Geo. Simpson	at	1.20....3.69
2	Imperial	Wm. Brooks	at	1.25....2.50
1	Imperial	Wm. Brooks	at	1.25....1.25
1	English Breakfast	Wm. Brooks	at	1.20....1.20

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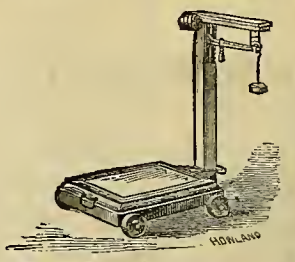

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Calendar for March.

Day of Month.	Day of Week.	Boston, N. England, N. York State, Michigan, Wisconsin, Iowa, and Oregon. Sun rises.	Sun sets.	Moon sets.	N. Y. City, Ct., Philadelphia, New Jersey, Penn., Ohio, Indiana, and Illinois. Sun rises.	Sun sets.	Moon sets.	Washington, Maryland, Virginia, Kentucky, Missouri, and California. Sun rises.	Sun sets.	Moon sets.
		H. M	H. M	H. M.	H. M	H. M	H. M.	H. M	H. M	H. M.
1	T	6 33	5 51	5 17	6 35	5 53	5 20	6 33	5 54	5 23
2	W	6 33	5 52	6 17	6 34	5 53	6 19	6 32	5 55	6 21
3	T	6 33	5 53	7 17	6 33	5 54	7 18	6 30	5 56	7 18
4	F	6 31	5 54	8 14	6 32	5 55	8 14	6 29	5 57	8 14
5	S	6 30	5 55	9 13	6 29	5 56	9 11	6 27	5 57	9 10
6	S	6 28	5 56	10 10	6 27	5 57	10 8	6 26	5 58	10 6
7	M	6 26	5 57	11 07	6 25	5 58	11 4	6 24	5 59	11 1
8	T	6 25	5 58	morn	6 24	5 59	morn	6 23	6 0	11 57
9	W	6 23	5 59	0 5	6 22	6 0	0 1	6 21	6 1	morn
10	T	6 21	6 0	1 3	6 20	6 1	0 59	6 20	6 2	0 55
11	F	6 20	6 2	2 1	6 19	6 2	1 56	6 18	6 3	1 51
12	S	6 18	6 3	2 56	6 17	6 3	2 51	6 17	6 4	2 45
13	S	6 16	6 4	3 46	6 16	6 4	3 42	6 15	6 5	3 37
14	M	6 14	6 5	4 34	6 14	6 5	4 30	6 13	6 6	4 25
15	T	6 13	6 6	5 17	6 12	6 6	5 14	6 12	6 7	5 10
16	W	6 11	6 7	rises	6 11	6 8	rises	6 10	6 8	rises
17	T	6 9	6 9	6 27	6 9	6 9	6 27	6 9	6 9	6 28
18	F	6 7	6 10	7 42	6 7	6 10	7 41	6 7	6 10	7 41
19	S	6 6	6 11	8 58	6 6	6 11	8 56	6 6	6 11	8 54
20	S	6 4	6 12	10 12	6 4	6 12	10 10	6 4	6 12	10 7
21	M	6 2	6 13	11 25	6 2	6 13	11 21	6 3	6 13	11 17
22	T	6 0	6 14	morn	6 1	6 14	morn	6 1	6 14	morn
23	W	5 59	6 15	0 33	5 59	6 15	0 28	5 59	6 15	0 24
24	T	5 57	6 17	1 35	5 58	6 16	1 31	5 58	6 16	1 25
25	F	5 55	6 18	2 30	5 56	6 17	2 25	5 56	6 17	2 19
26	S	5 53	6 19	3 18	5 54	6 18	3 13	5 54	6 18	3 8
27	S	5 52	6 20	3 56	5 52	6 19	3 52	5 53	6 19	3 48
28	M	5 50	6 21	4 31	5 51	6 20	4 28	5 51	6 19	4 25
29	T	5 48	6 22	5 2	5 49	6 21	4 59	5 50	6 20	4 57
30	W	5 46	6 23	5 28	5 47	6 22	5 27	5 48	6 21	5 25
31	T	5 43	6 24	5 51	5 46	6 23	5 53	5 47	6 22	5 53

PHASES OF THE MOON

MOON.	BOSTON.	N. YORK.	WASH'N.	CHA'STON	CHICAGO.
	D. H. M.	H. M.	H. M.	H. M.	H. M.
New Moon	2 3 56 m.	3 44 m.	3 32 m.	3 20 m.	2 50 m.
1st Quart.	10 8 27 m.	8 15 m.	8 3 m.	7 51 m.	7 21 m.
Full	17 9 8 m.	8 56 ev.	8 44 m.	8 32 m.	8 2 m.
3d Quart.	23 11 54 ev.	11 42 ev.	11 30 ev.	11 18 ev.	10 48 ev.
New Moon	31 9 14 ev.	9 2 ev.	8 50 ev.	8 38 ev.	8 8 ev.

AMERICAN AGRICULTURIST.

NEW YORK, MARCH, 1870.

We believe there never was a season which somebody did not regard as very remarkable, if not altogether without precedent. No one, however, on the seaboard, claims this winter as one of unusual severity. With us, it has been almost like summer for weeks together. We have seen a good deal of plowing done in both January and February, and the ground, up to the time of writing, has been bare of snow, except for a day or two at a time, since before Christmas. This comes, notwithstanding all the "signs." There hardly ever was such a crop of nuts—this betokened a severe winter; the corn husks were thick and abundant—this also indicated a long season of cold. Wild geese went south early; a good many bears, and other wild animals, were killed further south than usual, and there were a score of other "signs" of a hard winter. If it comes, it will be after we go to press. And now, almost everybody prophesies a cold March, and late spring. The fact is, nobody can tell, and he has been wise who has improved the winter to make his fences, clear off the stones, clean up fence rows, dig drains, and lay the tiles, so that whenever spring comes, he can go on with his work without interruption. March is, however, often best adapted for this kind of work, and we have yet to see the farm in America whereon there is not enough of it to do. Bright, sunny days, and a drying surface, are a temptation to begin plowing too early. Wait until the ground is settled, and the water is out of it, on all except sandy or gravelly soils which do not pack when wet.

The month is likely to be one of great changes in temperature; high winds will prevail, more or less, and the farmer's first thoughts should be to protect his stock and stores from exposure. The frost may derange foundations, loose weather-boards may be found, rain finding its way through the roof may make musty hay. All these things need a little closer looking to than was necessary during the winter. At the same time, the roads will probably be very bad, and the provident farmer will get all real necessities, including food and feed, lumber, nails for repairs, etc., beforehand.

Hints About Work.

Clearing up Fence Rows is good work for early spring. There are no leaves and grass to conceal big stones, against which, in summer, one is apt to strike the bush-scythe, hook, and axe, and a man can see much better what he is about. When the brush is cut, and the soil is loosened by the outcoming frost, the ground may be plowed much more easily than in summer.

Setting Fences.—Before the land is in condition to plow, and while yet it is mellow and loose, re-set old fences that have been blown or shoved out of place. The cheapest and best wooden fence a farmer can put up is one of ¾-inch oak strips, nailed to posts, set 6 feet apart, capped and battened.

The use of the Roller is too little known among some pretty good farmers. In the spring, as soon as the ground is free from frost, and firm enough not to poach up under the feet of horses or oxen, all land in grass and grain should be rolled. There are mole hills, and clods, torn up by the tread of animals, and small stones, and tussocks of grass, wheel tracks, and a multitude of things that cause irregularities of surface, which a good roller puts out of the way in once going over. Besides, plants heaved by the freezing and thawing of winter, are packed firmly in the soil.

Pick off the Stones from plowed land, grain fields, and newly seeded grass land, lay them in piles, so that they can be loaded into carts, and drawn off early in the morning, when the ground is stiff. Large stones should be lifted, and have sticks laid under them, when the ground is soft, that they, too, may be moved when it is frozen.

Grass and Grain Fields may be dressed with a few hundred pounds of bone-dust, plaster, and ashes, or all three mixed in about equal parts. Instead of this, any fine, well-rotted compost or manure may be applied, brushed in, and the field rolled. Liquid manure is particularly recommended as a profitable application in the spring.

Seeding with Clover is usually done in March, if possible. The best reason we can suggest for this is, that if a light snow covers the ground, the east can be easily seen. The stand is as good if the seed is sown any time before the May rains.

Plowing.—Plow no water-soaked land. Many a field of heavy soil is damaged for the whole season by being plowed before the water is out of it, and the labor of subsequent tillage is greatly increased.

Weeds.—March is one of the best times to kill certain biennial weeds. They start as early as the grass, and they are easily killed with a hoe. Go through the meadows and lanes, along the fences, and over the grain fields, with as strong a force of men and boys—women and girls, too, if possible—armed with hoes, and cut or pull all such weeds as thistles, mullcins, wild teazles, daisies, wild parsnips and carrots, and many other plants, now easily seen, but which will soon be concealed in the grass. Let docks alone; if cut, they will make half a dozen shoots, which will break off when one tries to pull them; allowed to grow until they are nearly ready to blossom, they may be pulled easily in wet weather, and destroyed, root and top.

Spring Grains cannot be sowed too soon after the ground is fit to plow. Prepare the seed by winnowing out the light stuff, and use only the plumpest grains. Soak in strong pickle, to kill smut. The ground should be in good heart, and mellow.

Peas and Oats will be found a profitable crop for many purposes. It is excellent for soiling, capital for hogs, and the combined yield of grain is greater than either oats or peas alone would reach.

Peas are sowed early; and though they need land in good heart and tilth, they do not need but are damaged by fresh manure.

Potatoes may be planted as soon as the land is warm; but north of Philadelphia, it is not advisable to plant many in March. If cut to single eyes, many sets are likely to be lost in cold, wet weather—larger pieces are best for early planting.

Manure may be hauled while snow lasts, or while the frozen ground permits easy wheeling on plowed land. Work over that which is liable to heat, and mix with litter not needed as bedding.

Swine.—Give breeding sows, soon to farrow,

good, roomy pens, and short straw for nests. Keep a close watch upon them, and if one does not own her young, or treat them motherly, put a small dog in the pen for a few minutes—she will soon own the little ones, and not err again. A sow will usually be in heat the third day after farrowing.

Sheep require extra care now. Scab will cause loss of wool, and they are peculiarly liable to disease. Use carbolic soap for skin diseases and vermin. Ewes, near yeaning, must be watched, and early lambs nursed and raised, if possible. One very early one is worth two late ones. Feed nursing ewes oil-cake and a few raw roots, and cut hemlock boughs for them to browse. Salt regularly, and give them dry places to lie in, and a good range.

Cows coming in must have care. Give them roomy, loose boxes for some days before, and good bedding of straw, cut two or three times. Bring water to them, if the ground is icy, but do not scrimp them. Feed also some raw roots, and oil-meal, perhaps, to keep the bowels moderately loose. All breeding animals should be familiar with their master, and like to be petted and handled.

Beeves and Fattening Sheep may be pushed forward now as the weather grows milder, and either ripened off, or kept steadily gaining a little, according to the stock market, and the price of food.

Working Animals, both oxen and horses, should be gradually accustomed to labor, if they have been standing idle, or it will tell hard upon them, and galled necks and backs will be the result. Should such trouble occur, bind on wet bags at night, and take all pressure off from the wounded parts by pads.

Poultry.—Set some hens early, especially if you breed pure stock, for early chickens that do well make the finest birds, and the prize-takers at the shows. Geese should hatch early; but for ducks and turkeys, the warmer weather of May is more important than the growth they will make.

Swampy Meadows should be burned over before the grass starts; they will then furnish the cows a good bite of grass long before the hill pastures.

Work in the Horticultural Departments.

It is the general impression that the unusually spring-like January is likely to be followed by a late season. Those are fortunate who took advantage of the pleasant days of winter to do such work as usually is attended to in March. Several have written to know what can be done to fruit trees upon which buds have swollen, to preserve them in case the mild weather is followed by severe cold. They are past remedy, and all hope of fruit from trees thus injured must be given up. See that the trees are not neglected on this account. A crop of well-ripened wood will be an important step towards success another year.

Orchard and Nursery.

The article by our Iowa contributor, on page 101, gives such practical hints upon planting, that it is necessary to say but little upon that point. Those who are able to select their trees at the nursery, as he suggests, are fortunate, but the majority of our readers must order from a distance, and take what may be sent them. The roots will usually be small, in proportion to the tops, but if they have been well packed, this difficulty may be met by cutting back the top sufficiently at planting, to compensate for the amount of roots lost in digging.

Shriveling may take place with trees long on the way, and not well packed. Open a trench in sandy soil, lay in the trees, and cover them, tops and all. In a few days, or a week, they will be found to have regained their former plumpness.

Girdled Trees are to be attended to as soon as discovered, as recommended in previous months.

Grafting.—Cherry and plum trees should be grafted earlier than the apple and pear, which are best left until the buds commence to swell.

Pruning may still be done where vegetation is dormant. Cover the wounds with grafting wax.

Fruit Garden.

Grape-Vines.—Plant if the soil is in proper condition. Use no manure. Cut back the vines to three buds, but one of which is to grow into a shoot. Plow old vineyards, and use the hoe near the vines. Layers may be made from last year's wood. Set posts for trellises.

Blackberries.—Set new vines early; leave no old cane; the growth should be all from the buds near the root. Six feet apart, each way, is a good distance, if they are kept within bounds by pinching.

Raspberries.—Set from four to six feet apart, according to the size of the variety. Let no old canes remain on plants now set out. Uncover tender varieties when severe frosts are over.

Currants and *Gooseberries.*—Set early. Prune.

Cuttings of grape, currant, and gooseberry may be put out; pack the earth well against them.

Strawberries.—Set as soon as the frost is well out of the ground, and plants can be obtained. Put the plants in rows, two feet apart, and set them eighteen inches distant in the rows. Remove all decaying leaves at planting, and shorten the roots about one-third. Where pistillate sorts are grown, plant a perfect variety near by to fertilize them.

Kitchen Garden.

Every spring we are obliged, in reply to letters, to say something about plants under glass. By a little pains in this direction, many vegetables may be had several weeks earlier than from seeds sown in the open ground. Those who follow market gardening, make extensive use of glass to forward their crops, and it may be done in the family garden to great advantage, provided one will take the necessary care. If one will not take the trouble, then he had better go on in the old way, and let glass alone. The easiest plan, and one attended with fewest risks, is to start seeds in

Window Boxes, which may be about four inches deep, and of any convenient length and width. Soap, and other boxes may be obtained at the grocer's, which may be cut in two, and answer well. Fill the boxes with light, rich soil, and sow seeds of tomatoes, cabbages, etc., and place in a sunny window—all the better if in the kitchen, where the air is usually moist. Have similar boxes of earth ready to receive the young plants when they are large enough to transplant. Water when needed. The next step is by the use of the

Cold-Frame.—The regular sash is six feet long, and three feet wide, but any other size will answer. Even old window sashes may be made to serve, if the cross-bars have channels cut, to allow the water to run off. The frame to hold the sash is made by setting down stakes, and nailing on boards. It should be eighteen inches high in the rear, and twelve inches in front. The slope should be towards the south, and the bed placed where it is sheltered from cold winds. The soil within the bed must be light, fine, and rich. Expose the glass to full sun during the day, and in the afternoon cover it with mats or board shutters. Work over the soil every few days, and when it has become well warmed, sow the seeds. When the plants are up, the sash must be raised at one end, to air the bed during the day; water must be given as needed.

Hot-beds are like the cold-frames, but with a mass of fermenting manure at the bottom, to give more heat than that supplied by the sun. The old way was to make a heap of manure, three feet high, and place the frame upon it. It is much more economical of manure to place it below the surface. A pit is dug about two feet deep, and of a size corresponding to the number of sashes to be used. A frame is made within the pit by boarding up, and the rear of it is to be eighteen inches, and the front twelve inches above the surface of the ground. Bank up around the outside of the frame. Fill the pit with fermenting stable manure, which will be all the better if mixed, one-third or more of its bulk, with leaves. Put in the manure evenly, and beat it down firmly with the fork. Put six inches of light, rich soil upon the manure, and spread evenly, and put on the sashes. A thermometer should be placed in the soil, and when the heat falls to about 90°, seeds may be sown. When the plants are up, they will need daily care. The glass must be raised in the morning, and closed in the afternoon, and shutters or mats must be put on at night. Neglect in airing at the proper time will burn the plants, and leaving the sashes open too long, when the heat of the sun declines, will chill them—extremes which are to be avoided. Egg-plants, Peppers, Tomatoes, and other plants, of warm countries, are raised in this way. Hot-beds are to be started about six weeks before planting can be safely done in the open air.

Cabbages and *Cauliflower*, that have been wintered in cold-frames, may generally have the sash removed by the first of this month. Those who do not keep fall sown plants over winter, can get a very good start by sowing in the boxes described above, and placing them, at first, in a mild hot-bed. When the plants have made a proper growth, they should be transplanted to other boxes, and when established, the boxes are to be transferred to a cold-frame, and gradually hardened off, by exposure to the air whenever the temperature will allow. Enough plants for a family garden may be grown in window boxes; these should be exposed on mild days.

Cucumbers, *Squashes*, and other plants that do not transplant readily, may be started in hot-beds, cold-frames, or in the house, by the use of small squares of sod, which are placed grass side down, and the seeds are sown in the earth. The bits of sod containing the plants are to be set out at the proper time. See article in "Basket" on "Hay Baskets for Starting Plants" for other contrivances.

Plow or Spade the soil whenever it is dry enough. Use plenty of manure, and work fine and deep.

Asparagus and *Rhubarb Beds* may be forked over if the season permits, working in manure.

Peas.—Sow early sorts as soon as practicable.

Potatoes for the early crop should be placed in a warm room, to induce the sprouts to start. After cutting, allow the surface to dry before planting.

Onions.—Plant Sets, Top, or Button Onions, and Potato Onions, as soon as the ground, which should be rich, is ready. See "Basket" article.

General Planting.—The hardiest vegetables are carrots, beets, spinach, salsify, onions, leeks, and early turnips. The time for sowing them will depend upon locality and season. To these may be added radishes, cress, and lettuce.

Flower Garden and Lawn.

The articles upon "Laying Out a Flower Garden," given last month, and this month, will be found to contain hints which need not be repeated.

Walks should be made permanent, and, if of gravel, must have a good foundation of stone. Asphalt walks, page 100, are worth considering.

Lawns.—Attend to the work of preparation early. Drain, if necessary. Let the soil be deep and fertile, and use a plenty of seed—from two to five bushels to the acre. June grass (Kentucky Blue), or Red-top alone make a good lawn. Various mixtures are sold by seedsmen. Imported lawn mixtures are unsuited to our climate. See last month's notes for other suggestions.

Perennials.—Those which have been in one place for three years or more, should be taken up, divided, and reset in fresh soil.

Green-house and Window Plants.

Now that the heat of the sun increases, more frequent airings can be given, and more care in watering will be required. Many plants that have been dormant will be pushing their growth, and many of those that have been kept for the winter in the cellar may be brought out and started.

Propagation of plants for summer use in the borders, such as Verbenas, Geraniums, and the like, should now go on rapidly. The secret of success is in keeping the air of the house at a lower temperature than that of the cutting bench.

AMERICAN AGRICULTURIST.

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"IN A NUT-SHELL."

If we recollect rightly, we have previously said something in these columns about giving "*premiums.*" Lest we may have omitted to do so, we will just say here, that the Publishers of the *American Agriculturist* "invented" a custom several years ago which has been widely imitated by others—a strong proof that it is a good custom—viz., that of issuing sundry "tokens"—premiums—to those friends who interest themselves in securing and forwarding subscribers to this paper. The plan has worked admirably. More than *Ten Thousand* persons have received these premiums. The number should exceed twenty-five thousand—or, at least one or more, for every Post-office in the country. *There is just as good a chance for* **15,000** *more, as for the past* **10,000.** THESE PREMIUMS ARE OPEN TO EVERYBODY, AND YOU, READER, MAY GET ONE OF THEM JUST AS WELL AS NOT, DURING THE NEXT FEW WEEKS.

The whole thing is in a "nut-shell." The next column contains a list of *first-rate* articles—not a poor thing among them. The Publishers could not afford to send out anything but the best.

IT IS EASY TO GET THEM! There are plenty of people, everywhere, who could not fail to get more useful, paying information from these columns than the paper would cost them. It wants somebody to tell them about this, and demonstrate it to them, and they will gladly subscribe, especially if some one will receive their subscriptions.

Now, we ask **Every Reader** to try the experiment during this and the next few weeks. The Publishers have an ample supply available, of nearly all the premium articles, and they will respond to all calls for them. Please see that *no one* in your neighborhood is without this paper who can possibly be persuaded to take it. You will be quite likely to secure a fine article from the prize list—something that will be useful. Look over the list, and see what is offered, and if you have not our last October number on hand, send to us promptly, and get a full descriptive list, free. YOU can get one or more of these premium articles, no matter how many premiums have been already taken in your neighborhood. There are everywhere some persons who are not yet subscribers, and almost every one can be induced to take the paper, if it is rightly presented to their notice. Please take hold of this matter, beginning to-day. If you get but two or three names this month, it will open the way, and give you experience for getting a large premium later on, or next year. Try it to-day. The "Special Notes" in the Third Column give some particulars to be read. ☞ "What you **will** to do, you **can** do."

[In the following table is given the price of each article, and the number of subscribers required to get it free, at $1.50 a year, *or* at the lowest club rate of $1 a year. For full descriptions of the articles send for our *Special Sheet.*]

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3	*Shorthorn Bull*	$700 00	580	1700
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6	*Ayrshire Bull*	$200 00	210	650
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39	*Lamb Knitting Machine*	$60 00	67	270
40	*Washing Machine (Doty's)*	$14 00	21	70
41	*Clothes Wringer (Best—Universal)*	$10 00	18	58
42	*Tea Set (Hart's best Silver Plated)*	$50 00	66	225
43	*Caster and Fruit Basket (do. do.)*	$30 00	44	140
44	*Cake Basket (do. do.)*	$12 00	19	65
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46	*Ice or Water Pitcher (do. do.)*	$18 00	27	90
47	*One Dozen Tea-spoons (do. do.)*	$6 00	15	45
48	*One Dozen Table-spoons (do. do.)*	$12 00	19	65
49	*One Dozen Table Forks (do. do.)*	$12 00	19	65
50	*Knives and Forks (Patterson Bros.)*	$14 00	21	70
51	*Knives and Forks (do. do.)*	$18 50	27	90
52	*Knives and Forks (do. do.)*	$22 00	33	110
53	*Knives and Forks (do. do.)*	$25 50	39	124
54	*Carver and Fork (do. do.)*	$5 00	13	37
55	*Fluted Steel (do. do.)*	$2 50	6	25
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57	*Pocket Knife (do. do.)*	$2 00	5	22
58	*Pocket Knife (do. do.)*	$2 50	6	25
59	*Ladies' Pocket Knife (do. do.)*	$2 00	5	22
60	*Melodeon, 4-octave (G. A. Prince & Co.'s)*	$67 00	78	295
61	*Melodeon, 5-octave (do. do.)*	$112 00	138	400
62	*Piano, Splendid 7-oct. (Steinway & Sons)*	$650 00	540	1600
63	*Colibri Piano (Mathusheck P. F. Co.)*	$450 00	380	1150
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Every Premium is described in the October Agriculturist, and also in a **Special Sheet,** *which will be sent* **free** *to every one desiring it. We have room here for the following only:*

Nos. 56, 57, 58, 59—Pocket Knives. —NOW FOR THE BOYS AND GIRLS!—These Premiums are among the most pleasing and useful that we have ever offered. Every boy, and girl, too, wants a pocket knife. We give them an opportunity to obtain a most valuable one for nothing but a little effort. These knives are made by **Mr. J. P. Swain,** whose work is equal to any done in this country or Europe. No. 56 is a neat, substantial Knife, with three blades and buck-horn handle. No. 57 is a still finer article, with four blades and buck-horn handle. No. 58 is an elegant Knife, with four blades and shell handle. No. 59 is a Ladies' Pocket Knife, a beautiful article, with four blades and shell handle.

Nos. 88 to 93.—Volumes of the American Agriculturist (Unbound). — These amount to a large and valuable Library on all matters pertaining to the Farm, Garden, and Household, and contain more varied information on these subjects than can be obtained in books costing three times as much. The price of the volumes is $1.50 each, at the Office, or $1.75 if sent by mail, as they must be post-paid.——They are profusely Illustrated, the Engravings used in them having alone cost about $35,000. Those obtaining premiums for less than twelve volumes can select any volumes desired, from XVI. to XXVIII., inclusive. For ordinary use, the sets of numbers unbound will answer quite well.

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Commercial Matters—Market Prices.

The following condensed, comprehensive tables, carefully prepared specially for the *American Agriculturist*, show at a glance the transactions for the month ending Feb. 15, 1870, and for the corresponding month last year.

1. TRANSACTIONS AT THE NEW YORK MARKETS.

RECEIPTS.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
26 days *this* m'th.	164,300	156,000	101,000	1,650	96,500	141,500
24 days *last* m'th.	247,500	185,000	141,000	——	173,000	237,000
SALES.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
26 days *this* m'th.	178,500	1,629,000	934,000	34,000	139,000	1,018,000
24 days *last* m'th.	214,000	1,756,000	995,000	32,000	133,000	768,000

2. *Comparison with same period at this time last year.*

RECEIPTS.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
26 days 1870	164,500	156,000	101,000	1,650	96,500	141,500
26 days 1869	181,000	353,500	601,000	950	26,500	79,000
SALES.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
26 days 1870	178,500	1,629,000	934,000	34,000	139,000	1,018,000
26 days 1869	226,000	1,339,500	1,478,500	61,000	327,000	1,476,000

3. *Exports from New York, Jan. 1 to Feb. 13:*

	Flour.	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
1870	195,853	1,212,227	40,883	——	——	1,987
1869	129,171	914,987	547,469	——	12,957	11,367
1868	79,207	201,623	966,847	10,218	——	5,658

4. *Stock of grain in store at New York:*

1870.	*Wheat,* bush.	*Corn,* bush.	*Rye,* bush.	*Barley,* bush.	*Oats,* bush.	*Malt,* bush.
Feb. 11	2,902,633	534,003	62,112	322,425	1,199,672	36,214
Jan. 12	3,423,028	591,903	33,289	34,900	1,310,935	85,405
1869						
Dec. 11	3,810,562	893,909	50,043	285,906	1,386,594	77,097
Nov. 10	1,616,030	633,085	31,700	31,584	281,581	66,782
Oct. 11	978,372	445,068	34,467	5,948	120,950	67,094
Sept. 6	745,121	127,736	56,081	——	183,920	134,870
Aug. 9	634,262	253,155	75,797	361	50,219	105,458
July 10	531,657	328,613	71,413	2,966	259,985	97,177
June 7	637,877	385,241	107,546	383	555,993	109,746
May 11	1,056,043	394,156	107,502	17,684	613,166	77,677
Apr. 10	1,684,633	1,080,769	165,008	48,281	1,178,740	66,664
March 12	1,990,416	1,301,167	211,880	81,616	2,000,457	50,095
Feb. 10	2,708,609	1,407,646	225,182	91,384	2,390,529	58,034
Jan. 13	3,524,173	1,509,233	263,360	54,740	2,864,354	236,001

CURRENT WHOLESALE PRICES.

	Jan. 14.		Feb. 15.	
PRICE OF GOLD	**121¾**		**120¼**	
FLOUR—Super to Extra State	$4 50 @	6 00	4 60 @	6 00
Super to Extra Southern	5 40 @	10 00	5 50 @	10 00
Extra Western	5 00 @	9 50	5 00 @	9 25
Extra Genesee	6 10 @	7 50	6 00 @	7 35
Superfine Western	4 50 @	4 85	4 60 @	4 90
RYE FLOUR	4 25 @	5 35	4 00 @	4 75
CORN MEAL	4 50 @	5 10	4 25 @	4 85
WHEAT—All kinds of White	1 35 @	1 60	1 35 @	1 65
All kinds of Red and Amber	1 00 @	1 28	1 05 @	1 35
CORN—Yellow	92 @	1 10	95 @	1 15
Mixed	82 @	1 08	85 @	1 07
OATS—Western	57 @	60	55½@	61
State	60 @	63	61 @	63
RYE	1 00 @	1 12	80 @	90
BARLEY	1 00 @	1 25	87½@	1 20
HAY—Bale ₱ 100 lb	80 @	1 20	85 @	1 20
STRAW, ₱ 100 lb	70 @	1 10	70 @	1 10
COTTON—Middlings, ₱ lb	25 @	26	25⅜@	25⅝
HOPS—Crop of 1869, ₱ lb	15 @	28	15 @	28
FEATHERS—Live Geese, ₱ lb	85 @	95	75 @	87½
SEED—Clover, ₱ lb	13 @	14	12¾@	13½
Timothy, ₱ bushel	4 00 @	4 25	4 25 @	4 75
Flax, ₱ bushel	2 20 @	2 30	2 20 @	2 30
SUGAR—Brown, ₱ lb	9¾@	12½	9¼@	12
MOLASSES, Cuba, ₱ gal	28 @	45	28 @	45
COFFEE—Rio, (Gold, in bond)	8¼@	12¼	9¼@	13
TOBACCO, Kentucky, &c., ₱ lb	9 @	17	8 @	14¼
Seed Leaf, ₱ lb	12 @	75	10 @	75
WOOL—Domestic Fleece, ₱ lb	42 @	60	45 @	60
Domestic, pulled, ₱ lb	30 @	47	23 @	46
California, unwashed	20 @	33	20 @	32
TALLOW, ₱ lb	9½@	10¼	9¾@	10¼
OIL-CAKE—₱ ton	41 50 @	47 50	42 00 @	46 50
PORK—Mess, ₱ barrel	27 25 @	28 00	27 00 @	27 50
Prime, ₱ barrel	— @	—	23 00 @	23 50
BEEF—Plain mess	8 00 @	14 00	8 00 @	14 00
LARD, in trcs. & barrels, ₱ lb	15¼@	17¾	14½@	17
BUTTER—Western, ₱ lb	20 @	35	18 @	35
State, ₱ lb	32 @	43	26 @	43
CHEESE	10 @	18	6 @	18¾
BEANS—₱ bushel	2 00 @	3 25	1 25 @	2 60
PEAS—Canada, in bond, ₱ bu	1 00 @	1 10	1 00 @	—
EGGS—Fresh, ₱ dozen	40 @	43	32 @	34
POULTRY—Fowls & Chickens	15 @	22	17 @	21
Turkeys, ₱ lb	18 @	24	18 @	24
Geese, ₱ Pair	1 75 @	3 50	1 50 @	3 50
POTATOES, New—₱ bbl	1 25 @	2 00	1 25 @	2 00
APPLES—₱ barrel	3 00 @	4 75	2 50 @	4 50
SWEET POTATOES, ₱ bbl	— @	—	— @	—
TURNIPS—₱ bbl	1 50 @	1 75	1 25 @	1 50
CABBAGES—₱ 100	— @	—	4 75 @	6 00
ONIONS—₱ bbl	4 00 @	7 75	4 00 @	5 50
CRANBERRIES—₱ bbl	10 00 @	13 00	10 00 @	13 00
BROOM-CORN—₱ lb	12 @	19½	16 @	18

Gold has been less active and less buoyant in price, closing at 120¼.....There has been a pretty fair trade reported on low and high grades of Flour, prices of which opened weak, but closed with more steadiness, on reduced offerings. The medium grades have been partially neglected, and have been very irregular.....Wheat has been in quite moderate demand, and heavy, though closing pretty firmly, with less of prime Spring and Amber Winter available.....Corn has been less sought after, and has been depressed.....Rye, Barley and Oats have been lightly dealt in, at lower and variable figures..... Provisions have been offered freely, at easier rates, leading to a livelier business towards the close.....Pork rallied sharply, under extensive speculative purchases, chiefly for forward delivery.....Cotton has been fairly active, but cheaper.....Wool has attracted rather more attention, at steadier prices.....Seeds have been in demand, and held with more confidence.....Hay has been salable and buoyant.....Hops and Tobacco have been quiet, and irregular in prices. The total stock of new Hops here is given at 18,813 bales; of old, at 12,040 bales.

Beef Cattle.—The market, for a month past, has been quite steady, with much uniformity in quality of stock and valuation. The very mild weather for the season, with no snow blockades, has prevented the usual rich range in receipts and prices. The best "tops" have generally sold at rates equivalent to 17c. per lb. for dressed weight, of the fore-quarters; "good" qualities, 16c. Medium and lower grades have varied not more than ½c.@½c. The general quality is about as in former months, except an absence of the poor Texas "hoppers," so abundant last fall. There has been a considerable sprinkling of very poor cattle from the far West, which the owners say have lost them money, as they could only realize 10c.@11c. net—often not that.

Jan. 19, ranged	9 @17c.	Av. 14¼c.	Large sales	13 @15¼
do. 24th do.	10 @17c.	do. 14½c.	do.	do.	13½@15½
do. 31st do.	10 @17c.	do. 14¼c.	do.	do.	13 @15½
Feb. 7th do.	10 @17c.	do. 14¼c.	do.	do.	13 @15½

New York Live-Stock Markets.—

WEEK ENDING.	*Beeves.*	*Cows.*	*Calves.*	*Sheep.*	*Swine.*	*Tot'l.*
Jan. 19th	6,743	72	419	30,234	15,483	52,951
do 24th	5,367	110	507	26,410	12,246	44,640
do. 31st	6,938	100	498	25,780	12,768	46,084
Feb. 7th	6,817	125	704	30,090	15,565	53,201
Total in 4 Weeks	25,865	407	2,128	112,514	56,062	196,976
do. *for prev. 4 Weeks*	23,256	471	2,075	106,394	43,650	176,046
	Beeves.	*Cows.*	*Calves.*	*Sheep.*	*Swine.*	
Average per Week	6,466	102	532	28,128	14,015	
do. do. *last Month*	5,814	118	519	26,598	10,912	
do. do. *prev's Month*	5,918	113	1,015	32,829	16,341	
Average per Week, 1869	6,275	92	1,752	23,836	15,348	
do. do. do. 1868	5,733	105	1,588	27,182	18,809	
do. do. do. 1867	5,544	64	1,320	22,154	20,605	
do. do. do. 1866	5,748	94	1,200	20,000	13,000	
do. do. do. 1865	5,255	118	1,500	16,001	11,023	
Total in 1869	326,280	4,827	91,083	1,499,509	798,190	
Total in 1868	298,128	5,466	82,571	1,413,479	978,061	
Total in 1867	293,832	3,369	69,911	1,174,154	1,102,643	
Total in 1866	268,880	4,885	62,420	1,040,000	672,000	
Total in 1865	270,274	6,161	77,991	836,733	573,190	
Total in 1864	267,609	7,603	75,621	782,462	660,277	

The splendid fat cattle of Mr. Ayrault, of Ponghkeepsie, N. Y., have created much interest among the butchers. The particulars of these are given in an item below. **Milch Cows.**—The supply has been quite equal to the demand, with little change in prices. We notice more fresh cows for sale, "with or without their calves," but they are not good enough to command advanced prices. Good cows, if fresh, bring, with their calves, $80@$100. Medium and half-milked, $70@$80, and poor ones a long way down, towards zero..... **Calves.**—The supply of veal calves coming to market, alive, is still quite small, and the price is affected by the large arrivals of "Hog-dressed"—that is, carcasses with the skin on. Prices for live calves, 11½c.@12c.@13c. per lb., live weight, according to quality. Hog-dressed, if fat, sell at 14c.@18c., and if very extra, 19c. per lb..... **Sheep** still keep in plentiful supply, with but little change either in quality or price. Some poor ones sell as low as 4¾c.@5c. per lb., live weight. Fair lots, 6c.@6½c. Prime, 7c.@7½c., with extra at 8c. per lb. .....**Swine.**—A large proportion of the hogs now coming to market pass directly to the slaughterers, and we only hear of them as dressed pork. The market has been somewhat unsettled, and at the close of our report, we notice a decline in price. Within a week, live hogs have declined from 9¾c.@10¼c., to 9c.@10c. per lb. The closing rates for Western-dressed is 11¼@11½c., and for City-dressed, about 1c. per lb. higher.

Stock in Montana.—H. S. Clark writes: This is a wonderful country for stock. They fatten and thrive on the wild bunch grass all the year round, preferring it even now, Jan. 13th to well-cured hay. Stock keep fat and sleek here on the "Back bone of the continent," all the year on bunch grass alone. A fact which seems incredible to many eastern stock-breeders.

The Ayrault Fat Oxen. — George Ayrault, of Ponghkeepsie, N. Y., has the credit of fattening two of the heaviest pair of oxen that have ever been slaughtered in this country; and could we know the weights, we might, in accordance with the claims of the owner, and the butcher (Wm. Lalor, of Centre Market), announce them as the heaviest ever slaughtered. They were raised and fed by Mr. Ayrault, having simply grass in summer, and only grain enough, with some roots, to keep them growing well in winter, until their regular fattening was commenced, more than a year ago. They had meal morning and evening last summer, and lately have been eating twelve to sixteen quarts of dry corn-meal in three feeds, with a peck or so of sugar beets as an appetizer, and all the hay they needed. The lightest one is said to weigh over 3,300 pounds, but it is humiliating to say that we cannot give the weights of the others, because many *bets* depend upon the announcement of the weights of the quarters after hanging one week. These remarkable animals are well represented upon the first page by an engraving from a drawing taken from the living animals by W. M. Cary. The two on the right are mates, and Mr. Ayrault challenges the world to produce another equally heavy pair. Some other remarkably fat cattle, fed by Mr. A., were exhibited with them.

containing a great variety of Items, including many good Hints and Suggestions which we throw into smaller type and condensed form, for want of space elsewhere.

Postage 12 Cents a Year in Advance.—The postage on the *American Agriculturist* anywhere in the United States and Territories, *paid in advance*, is 3 cents a quarter, 12 cents a year. If not paid in advance, twice these rates may be charged.

How to Remit:—Checks on New York Banks or Bankers are best for large sums; made payable to the order of **Orange Judd & Co.**

Post-Office Money Orders may be obtained at nearly every county seat, in all the cities, and in many of the large towns. We consider them perfectly safe, and the best means of remitting fifty dollars or less, as thousands have been sent to us *without any loss.*

Registered Letters, under the new system, which went into effect Oct. 1, 1868, are a very safe means of sending small sums of money where P. O. Money Orders cannot be easily obtained. *Observe*, the *Registry fee*, as well as postage, *must be paid in stamps* at the office where the letter is mailed, or it will be liable to be sent to the Dead Letter Office. *Buy and affix the stamps both for postage and registry, put in the money, and seal the letter in the presence of the postmaster, and take his receipt for it.* Letters thus sent to us are at our risk.

Clubs can at any time be increased by remitting for each addition the price paid by the original members, if the subscriptions all date at the same starting point. The back numbers will, of course, be sent to added names.

Bound Copies of Volume XXVIII (1869) are now ready. Price, $2, at our office; or $2.50 each, if sent by mail. Any of the previous twelve volumes (16 to 28) will be forwarded at the same price. Sets of numbers sent to our office will be neatly bound in our regular style at 75 cents per vol., (50 cents extra, if returned by mail.) Missing numbers supplied at 12 cents each.

Good Success is attending the labors of those securing premium clubs. One lady is now sending in the names for her TWELFTH *Premium Steinway Piano*! This is a good month to gather names for new clubs or to complete those under way. See page 98.

The Seasonable Advertisements filling several pages of this paper, are worth looking all through. Early orders to nurserymen, seed-dealers, etc., are likely to be more surely filled in time. All advertisers are pleased to hear from those writing to them, *where* their advertisements are seen.

The New Catalogues.—The Nurserymen, Florists, and Seedsmen have sent us their catalogues in such numbers, that we acknowledge them in a lump. They vary from the simple enumeration of articles for sale, to expensively illustrated treatises. Among several of the seedsmen, it would seem that each tried to excel the other in the elegance and pictorial character of his catalogue. This year one dealer outdoes the rest in putting in his portrait, and we expect, next year, that some rival will give engravings of his wife and babies. One thing we are glad to note, in regard to the catalogues—they show a nearer approach to correctness in nomenclature and spelling than we have been accustomed to see, and they bear witness to the enterprise of our dealers, who spare no pains in procuring novelties, and in presenting them to the public in an attractive form.

Market Gardening and Floriculture.—Mr. Peter Henderson is widely known for his long and successful experience as a gardener and florist, as well as the author of those deservedly popular works, Gardening for Profit and Practical Floriculture. He has been for some time engaged as a regular contributor to the *American Agriculturist*, and will present his experience to the public exclusively through its columns. Mr. H. will find a large circle of appreciative readers, who will be glad to have his teachings come regularly, instead of occasionally.

The N. Y. State Agricultural Society, at its annual meeting on Feb. 9th, elected the following officers: President—Solon D. Humgerford, of Jefferson County; Vice Presidents—Thos. H. Faile, Jr., of New York; Samuel T. Taber, of Queens; Julian Winne, of Albany; Frank D. Curtis, of Saratoga; James Geddes of Onondaga; Wm. M. Ely, of Broome; B. F. Angels, of

Livingstone; Richard Church, of Alleghany; Corresponding Secretary—Thos. L. Harrison of Lawrence. Recording Secretary—John Haven, of New York. Treasurer—Luther Tucker, of Albany. Executive Committee—Wm. Chamberlain, of Dutchess; Robt. J. Swan, of Seneca; Fordham Morris, of New York; Miles Ingoldsbee; W. H. Watson, of Orleans; Edwin Thorne, of Dutchess; Joseph Julian and James W. Wadsworth. The next State Fair is to be held at Utica. A resolution was passed, favoring the repeal of 20 per cent duty on animals imported for breeding purposes. Prof. Law gave an address on the diseases of Cattle.

Maple Sugar Items.—Mr. Chamberlain, author of the articles on Maple Sugar Making in the present and last months' issue says: "In the first sentence of the third paragraph of the article in January, the last clause should read "and two sheets of 12x12 inch tin." Recently a patented metallic sap spout has been brought to my notice, manufactured at Chagrin Falls, Ohio. I think it will prove superior in several respects to the wooden one described in my January article. I shall give 200 of them a careful and exact test through the entire season of 1870, and if they prove as I think they will, shall use them exclusively. I forgot to say, that maple syrup may be canned like fruit, and retain its flavor perfectly any length of time. Fruit cans in plenty are empty in time to can the syrup."

Unanswered Letters.—The large number of letters to Mr. Judd, requiring his personal attention, have recently become so numerous, that he finds it absolutely impossible to give them prompt consideration, and on this account he begs his friends and correspondents to excuse what might seem to be discourtesy or inattention. The hours in a day, and the days in a week are limited, as are human strength and endurance.

Northern Ramie.—Mr. Samuel Miller, of Bluffton, Mo., thinks that one of the Western nettles, *Urtica chamædryoides*, or *U. purpurascens*, will prove valuable as a fiber producing plant. The Ramie is a close relative of the nettle, but will not flourish at the North. Mr. M. sends us some seeds, and says that he will supply with a few seeds those wishing to make a trial of it, who will send a stamped and directed envelope.

The Blanchard Butter Essays.—Competitors should remember to mail their essays previous to the 10th of this month, that they may be received on or before that date. See notice in February, page 50.

Sundry Humbugs.—Our labors in this department are not without some humorous features, as witness: A Vermont woman, whose name we omit now, as her case is "under consideration," tried her prettiest to extract sundry greenbacks from the writer's pocket, by a plaintive story, pretty well told, concerning her loss of a husband in the war, and the crippling of a "dear boy," bearing o-n-r n-a-m-e! Said boy could be restored if his board could be paid for three months ($40), while with the doctor. Could we resist the appeal to save the boy to his mother—a boy with our *own name*, too? Not much. Our "flying detective" sped away to the Green Mountain State on a message of mercy, perchance—perchance not. What a fall to our vanity! The boy wouldn't answer to *our* name—"didn't know nothing about it"—wasn't hurt at all. Oh, dear! A name lost—but our greenbacks are *safe*, Mrs. W!.....Here come two circulars—one from Virginia—one from "out West"—both wanting a little help—just a little—to save a church. The Virginia appeal all right—the other a downright swindling scheme. *Mem. 1st.*—Those sending such circulars must take more care to establish their reliability and identity. *Mem. 2d.*—It don't do to respond to every letter or circular calling for help for churches or other enterprises, when from unknown persons!.....A Michigan swindler advertises, by circulars, a superior six-shooter Revolver for $1.25. Such a thing is not made at any such price. Several correspondents sent the money for them long since, and have written for them time and again, but can get no reply. A look at the man's circular, in which he offers also "bedroom pictures," etc., is enough to condemn him as an unmitigated villain. He that will steal purity and good morals, will not hesitate a moment at stealing money. A similar "Revolver" is advertised at Chicago for $2.....In reply to many inquiries about a variety of "doctors," we say positively, for the fortieth time, that *not one* of the doctors for eyes, ears, private diseases, consumption—and everything else—who advertise themselves, is worthy of a moment's confidence. Write a letter to them, or let them get hold of your case in any way, and it will be "your money or your life"—very often *both*. They are great adepts at working upon people's imaginations when they can get a clue to them. This, and the following, must answer a score or more to whom we can not respond by letter, for want of time. The notorious "*Rev.*" Edward Wilson still finds poor dupes, enough to pay for extensive advertising, and extensive profits on his so-called medicine. Jno. B. Ogden still keeps on confessing the "errors of *his* youth," but don't confess the errors he is leading all those into who send their money to *him* for advice or medicine. Joseph T. Inman is in the same category, with the sanctimonious addition of a "Bible House Station" to his persuasiveness. When the fools all die, these men will seek other business, and professedly "religious papers," advertising their cards, will have less sins going on to the record, for wicked advertising .....Wakefield & Co., (merely a new name,) are practising the same cheat as was described by us last month under Watson, Graff & Co., and Harrison & Co. What a swarm of "Receivers" must have been appointed to settle up Reed & Co.'s Riverside scheme, making it, if possible, a worse swindle in the end than in the beginning.....Of the Spurious Money (fac-simile) dealers, we have said enough in previous articles, in referring to Wogan & Co., Waters & Co., Lotz & Co., Porter & Co., Clement & Co., Noyes & Co., "Fourth *Street* National Bank," etc., etc. Among the new swindling names in this line, we notice Armstrong & Co., F. Porter, etc.....The Cheap Sewing Machine swindle crops out in a new place every month or so. Now we have its "Apex" towering over the top rooms of 208 Broadway—the attic of which (with Nos. 204 and 206) is a pet resort of swindlers, to the great disgust of respectable business establishments in the same building.—After looking into the matter frequently, we advise our readers that they will, in the end, have cause for regret if they send any money to any parties, anywhere, offering good sewing machines for $5, or $10, or $15, whether as special inducements to act as "agents" or not.....The "Barnegat Beach Wrecking Company's Prize Checks," and accompanying "Trivelio" recipes are swindles, and the traveling operators should be arrested wherever they show themselves..... To Georgia Lady: The Parlor Steam-Engine "bust up" some time ago, and carried with it all the dollars sent in. Nothing remains to tell where it *was*, or where it has gone to—so we can't collect that $1.....Meredith, Halstead & Co.'s Great Distribution is a myth.... Several "Music Box" swindlers are at work in different parts of the country. It is now unsafe to buy without first seeing, hearing, and having in your hands, what you are to pay for, unless it is to come from well-known reliable dealers. Thousands of ten cent mouth-reeds have been sent as $3 to $5 music boxes. (See our Jan. No.)... Several correspondents think they get bit by an "Adder," in trying to buy a 75c. adding machine. They think it is a capital instrument to *subtract* people's money, and never *add* anything to their *in*-come. Quite likely. We believe there are good adding machines, and good people selling them, and also, some of both not so good as they might be. ....One of the vilest of the vile scourges of the earth is the one calling himself the "American Purchasing Agency," who offers to supply impure books, pictures, etc. He is only to be reached by letter, but scatters the poison broadcast, corrupting and polluting the youth of our land. Well may a father write us, "with tears in his eyes, and agony in his heart," on finding in his son's room some of the vile articles this satanic being sends out for the lucre it brings him. It behooves parents to look well to what their children receive "sent carefully sealed through the mails," or get from others who do receive them thus. .....A very "Sympathizing Friend" is the Nassau-st-man, who wants all young men, 50,000 he says, who are "ruined by youthful excesses," to send him $3 each for a positive cure. We say, keep your $3 out of this fellow's hands.....Clifford & Rightor, by a great show (on paper) of respectability and large, responsible business, as manufacturer's agents, etc., have succeeded in swindling several people. We can't find them at home in Vesey street..... A batch of other humbugs must wait for next paper.

Circulars Wanted.—Will our readers please send us any circulars issued by any parties at *Hinsdale, New Hampshire?* A variety of business firms advertise at that point, and we would like to get copies of all circulars issued by these various parties during the present, and half a dozen years past. We have many, but desire a complete list, if we have not one already.

Verbenas and Roses in Winter.—The trouble that "C. N., Ridgefield, Ct.," has with these plants is mainly in consequence of keeping too high a temperature in her room; it makes but little difference whether the high temperature is produced by a coal or a wood fire. The plants, in their comparatively dormant condition during the winter season, require a temperature never to exceed 50 degrees on an average. Florists who make a special business of growing these plants never allow their green-houses to get higher than 40 degrees by fire-heat at night when the plants are dormant. The curling up and dropping off of the leaves are attributable to too high a temperature. It is exceedingly difficult to grow Verbenas well in a common sitting-room; at least one-half of the professional florists fail with them in their green-houses, mainly from the same cause, viz.: the high temperature which they are obliged to keep to accommodate other kinds of flowers.

California Grape-Vines.—Here is a horticultural humbug of the worst kind. A chap in Indiana offers California grape-vines, with a certificate from sundry people that "they grow and do better than any other grape that has been tried in this country." We have no doubt that the man sells California vines, but he has no right to try to make people think they will do well in Indiana. Here is where the humbug comes in. Why do these chaps who have wonderful plants for sale, present certificates of sheriffs, merchants, and representatives, but never the name of a horticulturist?

To Get Rid of the Ox-eye Daisy.—"T. B. R.," Alexandria, Va., asks: "Do you know any method (other than repeated cultivation) by which the 'Ox-eye Daisy' may be destroyed? It spreads very rapidly, threatening serious injury to grass fields that many of our people wish to continue in grass. This weed was much introduced during the late war in the hay used by the troops of the general government."—One of the minor results of war is the weeds that it carries in its train. There is probably no way to get rid of this weed except clean culture, and early cutting before it blossoms, so that no mature seeds shall get into the manure.

"Black-leg" in Cattle.—"E. B. C.," La Porte, Col. With reference to black-leg, Dr. Liautard refers us to Professor Gamgee's statement that Black-quarter, which is probably the same thing, has been successfully prevented by proper drainage, by keeping up the condition with oil-cake, and the use of purgatives and setons. The administration of half an ounce to an ounce of nitre in food is of great benefit. Purgatives and stimulants also should be freely administered.

Brewers' Grains Bad for Fowls.—The experience of "J. F. C.," Wrentham, Mass., indicates that brewers' grains fed freely to fowls, induces disease. Are not the fowls which run at large about breweries, healthy?

Hen-plucked Roosters.—"B. F. H.," Natick, Mass., found that his hens plucked off the feathers from the neck of a favorite Black Cochin cock. He applied castor oil to the bare neck, and to the feathers, and it proved a complete remedy.

The Hatching of Eggs can not be expedited by artificial means. It can only be accomplished in the regular time, or a little longer, if at all.

Keeping Eggs.—"H. R. D.," of Belmont, N. Y., has, for forty years, been in the habit of keeping eggs by taking them fresh from the nest and greasing them with good lard or butter, and setting them in a cool, dry place, handling them over once in a while, to keep the yolks from settling down to the shell. With him they keep six or eight months. We have had best, in fact, perfect success, by plunging the fresh eggs, a few at a time, held in a wire ladle, into a kettle of boiling water, and keeping them there long enough to count 10—say five seconds. The water must not stop boiling.

Potato Literature.—There has been a potato excitement and we are now about to have a potato literature. Best's Potato Book has an introduction by Henry Ward Beecher and contains the accounts of the competitors for Mr. Best's prizes for the methods by which they raised the greatest number of potatoes from a given quantity of seed. Price 50 cents....The $100 Prize Essay, which took the premium offered by Mr. Wylie is in press by Orange Judd & Co. Besides the Essay there are other matters of interest to potato growers. An illustrated pamphlet of about 60 pages; price 25 cts.

Roupy Fowls.—Roup is a name which really covers half a dozen diseases, and perhaps more, which, so far as we can judge, have but few common symptoms. Following a cold in the head, a change occurs, the breath smells very bad, and there is an offensive secretion about either the mouth, eyes, or nostrils. The earliest stages of the disease are indicated by a twitching of the head to one side, accompanied by a "quitt,"—then a rattling of the breath, heard best at night. This continues until the disease is well advanced. It may pass into a profuse accumulation of frothy, viscid mucus, filling the beak, gumming up the nostrils, closing the eyes, preventing eating, and destroying the bird by hunger, thirst, and suffocation. It may pass into canker of the mouth and throat, which gradually extends, inflaming and destroying the tissues, or into a diseased condition of the

whole mucous surface of the mouth, eyes, etc., causing a copious watery discharge, which causes inflammation and sores upon the gills and face, where it comes in contact with the skin. There is another disease frequently accompanying roup, though we cannot say that either passes into the other, properly. This generally affects one eye, causing a great swelling of the parts. It is usually followed by a loss of the eye, and frequently the fowl recovers. We have observed this disease—as we suppose, in two forms, which may, indeed, be different diseases. In one form the swelling is fleshy and thick, inclosing more or less watery fluid:—in the other, it is caused by the formation of a dense cheese-curdy growth, of tough nature, and yellowish white color. This growth often takes place in one of the lachrymal ducts, usually just at the entrance of the duct, and we have seen it so large that the entire eye socket was filled with a mass as large as a hickory nut. Instead of forming in the eye, this sometimes grows in the roof of the mouth and extends until it causes the greatest distress, and finally death. Taken early, any of these forms of roup may be surely cured. It is usually sufficient to give stimulating food, and wash the face, eyes, nostrils, month, and throat, thoroughly, with "Chloride of soda" (chlorinated soda—Labarraque's solution), of half its normal strength. We presume "Chloride of Lime"-water or Permanganate of soda, would be equally effective. Delay is fatal; the disease becomes contagious as soon as the fœtid odor is observable, but to what degree is not well known; drinking from the same fountain is always hazardous. Roupy fowls should be isolated at once.

Bee Keeper's Convention.—There will be a Bee keeper's convention in Albany, March 10th, one o'clock P. M., at the State Agricultural Rooms. A general attendance is requested. M. QUINBY.

Olm Bros., of Springfield, Mass., make a specialty of sending green-house and bedding plants by mail, and offer all the novelties. Their recent catalogue presents a new feature—a lithographed design for laying out grounds, which may be used for a large place or a small one, and will afford useful suggestions to those intending to make improvements.

Stables, Out-buildings, and Fences, is the title of a new architectural work which reaches us just as we go to press. The author is Geo. E. Harney, and it is published by Geo. E. Woodward. The illustrations of farm buildings, rustic work, stable fittings, and the like, are numerous, and we doubt not the work will supply a long felt deficiency in our architectural literature. Price, by mail, $10.

Norway Oats.—What Oats to Plant.—Last fall, we asked for the experience of those of the readers of the *American Agriculturist* who had raised the Norway Oat, or had tried it in comparison with other sorts. We have received a number of responses, and proposed to print them this month, but they are crowded out. The writers who have had good seed, with a few exceptions, seem greatly in favor of the Norway. The yield in some instances has been enormous. The straw uniformly extolled for stiffness, length, and leafiness. The best success seems to have been where little seed was drilled in, on good land. The plants, when not crowded, make many stalks. In procuring seed for planting, we surely would try some Norway, even if they failed last year. Other varieties should be tested also, but of the new kinds, these take the lead. They are *not* white, but of various tints of lighter or darker gray, or rather smoke color, never black.

To Save a Poisoned Dog.—"H. H. H." recommends the administration of flour and warm water, as the only effective emetic he has tried, having, by its use, saved a valuable dog which had taken poison.

Winter Butter in Virginia.—"J. F. B." writes from Greenville Co., Va., that he is milking eight very indifferent cows, and averages only 28 pounds of butter per week, from October to February, feeding corn fodder, and a pint of corn-meal, and a quart of ship-stuff, daily, to each cow. It makes him think of the cows he used to milk in Vermont, and he thinks if he had such now, he could do very well at butter making in that milder climate. This is true; and farther South it would be even better, for winter pasturage is often abundant, and might be easily provided. One great need of the South is good neat cattle. Ayrshires and Devons are especially recommended. Buy thorough-bred bulls, and gradually bring the native stock up.

Fumigating Trees.—Who has had any experience in fumigating trees in the open air, either for the purpose of killing insects, or for destroying fungi?—We are induced to make this query by an examination of a very ingenious fumigator, made by Badonio & Fteley, and which was advertised last year in our columns. If out-door fumigation is really useful, this implement will apparently accomplish it.

Winter and Spring Barley.—"C. H. G." There is no difference between them, except that the winter barley has, by being repeatedly sown in the autumn, become hardy and stands the winter.

Gypsum in Tennessee.—W. T. Waters.—As long as plaster costs you $35 per ton, or even $25 per ton, it will probably not pay you to use it as a manure.

Petroleum for Roofs.—"Will not petroleum make roofs more inflammable?"—If the roof catches fire, the petroleum would favor combustion; but a roof treated with petroleum is not as likely to catch fire from sparks. It fills up the pores, and the wood becomes hard, firm, and smooth.

Lime Kilns.—An article on kilns in September 1867, gives some valuable details with engravings.

Forest Trees from Cuttings.—"A. W. W.," Muscotah, Kansas. The only trees likely to succeed from cuttings, except in the hands of an experienced propagator, are the Willows and Cotton-woods. Of these the cuttings are best taken before the sap starts in the spring. The article on Hedging, in February, gives directions for planting them. Other trees are best raised from seed.

Flower Seeds Gratis.—Mr. Chas. D. Copeland, of Lima, Livingston Co. N. Y., writes that he has a considerable surplus seed of "Fancy Pinks" and "Sweet Williams," embracing German, French, Italian, China, and Japan varieties, and he will be happy to send a free paper of the seeds, mixed, to any subscriber of the *American Agriculturist* who will furnish him their address, with a Post-office stamp, for the postage. He will find it a larger job than he has looked for, but he is willing to risk it, and we vary from our general rule not to publish such offers. One of our subscribers formerly offered to send a descriptive circular of a certain breed of animals. After distributing 13,000, at a cost of 10 cents each, he was glad to beg us to withdraw the offer.

Trouble with a Seed Drill.—A subscriber of the *Agriculturist*, in Georgia, writes that he has bought a wheat drill, that it sows dry wheat well, but it will not sow wheat that has been treated with a solution of blue vitriol. Neither would it do so after the wheat had been rolled in ashes to dry it. If the difficulty cannot be overcome, he says the drill is of no use to him. He does not mention the name of the drill. With a "cup" drill, we have never had any difficulty in sowing vitrioled wheat. The only remedy we can think of is to use a stronger solution of vitriol. Turn over the wheat repeatedly, or run it through a fanning-mill until it becomes dry enough to sow. The vitriol will not injure the wheat if kept dry for several weeks before sowing. Ashes or lime should not be mixed with the wheat immediately, as they will neutralize the vitriol. But after the application has destroyed the fungus on the wheat, the ashes or lime would probably do no harm.

Timber in Southern Indiana.—"A Subscriber" has 75 acres of heavy timber two miles from a Railway station, where it is worth $3 per cord. Shall he clear it or not?—No. We think, if he holds on, it will rise in value so as to pay not less than 12 per cent interest per annum for several years, and if the trees are second growth, they are gaining 3 to 8 per cent per annum.

Manuring Corn.—"L. W. G." Barreville, Pa., proposes to plant thin sward land limed, with corn, and intends "to put one handful of dry cow dung without straw on each hill." He is in doubt, whether to mix plaster or lime in considerable quantities with the manure. Of course he should use plaster, for thus, any ready formed ammonia present, and liable to escape would be saved, while lime would drive it off if not immediately buried. Besides the soil has probably lime enough.

Improvements in Field Rollers. Mr. N. G. Jenkins, of Brookside, N. J., suggests some improvements upon the plan of making rollers, described in the January number. His suggestions are excellent, but he, perhaps, does not remember that we describe one that any farmer may make, with only a little help from the smith. "I would make the drums not less than 3 feet in diameter, which gives lighter draught, as well as greater weight. In place of the 1¼ plank in the centre, I would substitute a piece of iron, ⅜ x 4 in., passing through the inner timbers of frame-work, with nuts upon either end; this would allow the drums to run closer together, say not more than 1 inch apart. In place of the journals I substitute a rod of 1-inch round iron, running the entire length of both drums and frame. The rod remaining stationary, I use cast boxes, running through the head of each drum, with flanges on the same, and bolt through the heads. The rod can be drawn out at any time for repairs, or other purposes. I use old tire from wagons, and hoop the drums at each end, and put dowels in the centres of the drums, to keep them in place, and also arrange a seat for the driver over the centre of the roller, which is both easy and convenient."

The Monte-Bello Apple.—Thos. Gregg, Secretary of the Warsaw, Ill., Horticultural Society, writes: "Permit me to thank Mr. Charles Downing for calling attention to so valuable a new apple as the Monte-Bello, noticed in your January number. The sketch given does not, however, do justice to it. It is regarded by the members of the Warsaw Horticultural Society—which has the honor of bringing it into notice—as one of the very handsomest, as it is one of the very best fall apples known; and as the few trees in existence are hardy, and good bearers, it is deemed a great acquisition. It is a remarkable fact in horticultural history that a variety so valuable should have existed in a community for over twenty years almost unknown. Now that our society has brought it to notice, it is exciting much attention, not only abroad, but at home, where its merits should have been recognized before."

Bots in Horses.—A subscriber who believes that "a great many horses are killed by the bot grubs in this section" wishes a remedy. It is a remarkable fact that though every quack horse doctor in the land attributes all sorts of evil and fatal effects to the bot grub, no educated veterinarian believes that they do much harm. The best books on the diseases of the horse say, they do little or no harm; and the man of all others who made the different kinds of bot flies and grubs his especial study (Bracy Clark V. S.) thinks, they do good, rather than harm. One thing is certain—there is only one thing to be done—that is let them alone. They are now nearly full grown and will detatch themselves and quietly pass out in the course of the season.

What is a Ton of Manure?—Peter Henderson says: I must have had over a hundred letters during the past year, asking me how many bushels of manure go to make a ton or how many tons are in a *cord* of manure. These letters still come asking the same questions, exhausting not only my stationary but my patience in answering. One would think that the slightest reflection would show that the condition of the article—wet or dry—solid or light—would so affect the weight, that no comparison between measurement and weight could be given. A little exercise of judgment, will make it apparent, that weight only, is the fair test of value; for if it takes 50 bushels to be a ton, costing $2, it is likely to be of no more value than 25 bushels would be, having the same weight; for the one article would be strawy and loose, the other moist and solid.

Van Buren's Golden Dwarf Peach and Horse Plum.—J. Beachy, Preston Co., W. Va. The Dwarf Peach is worked on the common peach stock, and retains its dwarf character. The Horse Plum is a purple variety, also known as Early Damson, but we cannot tell if it is your common plum.

Eumelan Grape.—Mr. F. R. Elliott, in a recent letter, says: "I notice you are offering the Eumelan Grape among your premiums as compensation for labor in obtaining subscribers. Perhaps no grape of very recent introduction better merits approval. Like the Delaware, it is a sort with which in quality of fruit we may hope to tone up and improve public taste, while realizing a profit in its sale. I have watched the growth of the vines for two years, and they compare favorably in all respects with any and all other varieties. My valued friend, Prof. J. P. Kirtland, fruited it the past season, with, I think, as good or better promise of value, as any other young vine of whatever sort. The question comes to me almost daily, 'What grape do you advise to plant?' and I reply, plant mainly of those you have heretofore known to prove profitable in your section and like soils; but of the new black grapes don't fail to plant some of Eumelan, as a grape of promise. I have known several acres of it planted the past year resulting in uniform and satisfactory growth, giving good cheer to the enterprizing planters, who doubtless congratulate themselves on their foresight."

Cabbage Insect.—"R. B. K." Sprinkling the young plants with ashes and plaster keeps off the "black louse." We suppose the "large white grub" referred to is the larva of the May-bug. No remedy short of digging it out and killing is known for the White-grub.

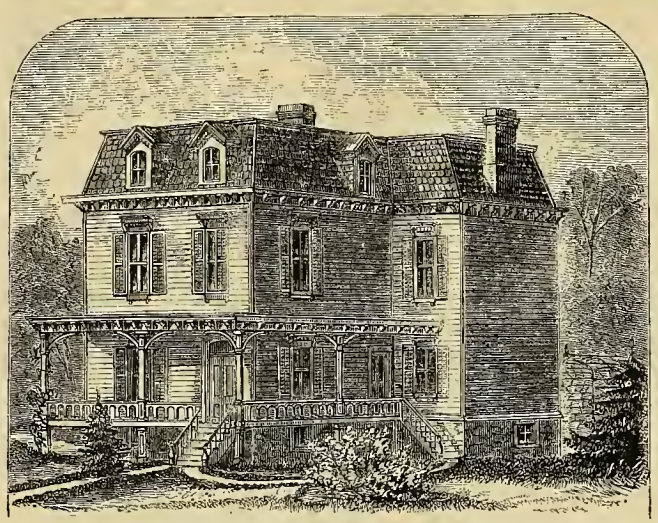

Fig. 1.—FRONT OR SOUTH-EAST ELEVATION.

A Convenient House of Medium Size.

Half-a-dozen houses, alike in plan, and differing a little in size, are now being completed in Flushing, L. I. They are designed to furnish comfortable homes for such as desire a convenient house, at a cost of about $5,000, exclusive of land. They were planned by the senior Publisher of this Journal, who has a fondness for mechanical constructions, as a pastime, especially in the way of house-building. **The Elevations** are seen in figs. 1 and 2. The houses face southward to the street, and fig. 1 shows a view from the south-east. Fig 2 gives the opposite, or north-west view. It will be seen, by fig. 2, that the rear is almost as tastefully finished as is the front. As previously remarked in these pages, people see their own houses from the rear oftener than from the front; and their own taste and self-respect should be consulted, by having the house look well on all sides—not a fine front for show to others, and a cheap look in the rear for their own habitual observation. Besides, few houses are so situated as not to be seen on every side from some point. A few dollars in window caps, etc., make all the difference....The siding (fig. 6) is of 10-inch boards, a full inch thick, and grooved in the middle, to give the appearance of narrow boarding. The lap is 1 inch, which

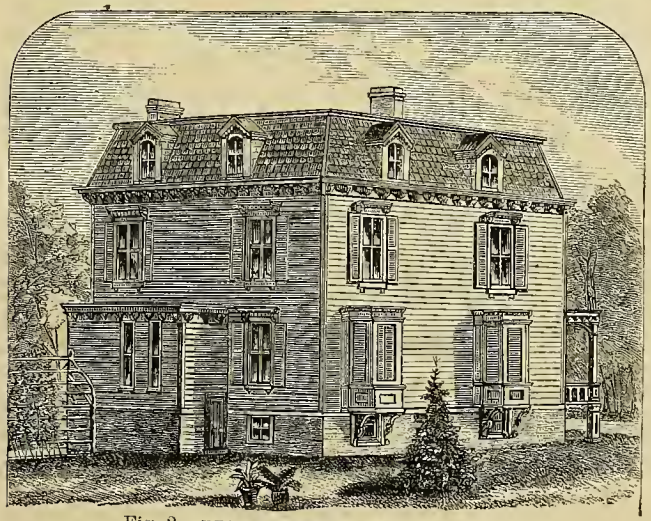

Fig. 2.—REAR OR NORTH-WEST ELEVATION.

prevents the entrance of cold air. This siding is to be greatly commended. The joints are very close, and but half as many as in ordinary clapboarding. These thick boards add greatly to the warmth and solidity of the walls. With such siding, the house is many times stronger than with ordinary clapboards, though the upright timbers be only half as large. The cost is but little greater.....Bricks, laid in mortar, with an open space on each side, fill all the walls, from the cellar to the roof. The Mansard-Roof is covered on the sides with blue slate, laid over a double thickness of felting, and on the top with heavy tin. The Mansard-roof is set more perpendicularly than has been the usual custom. This makes the rooms in the third story very commodious, and it improves the general outside appearance.....**The Cellar** is of brick, nearly five feet out of ground, with large windows. Except in very cold localities, houses are generally set too low. It is more healthful to have the living rooms well above the soil in all cases. The cellar is lighter, and more airy, and, if desired, may be plastered and used for laundry or cooking purposes.

First Story, fig. 3.—Hight to the ceiling, 10½ ft. The *Piazza*, *P*, supported on brick piers, extends around two sides, with banisters, and front and side steps. The *Front Hall*, *A*, is wide. This always gives character to a house: a narrow entrance Hall dwarfs an entire house. A side door, under the stairs, opens on to the side piazza. The *Parlor*, *B*, is ample for all ordinary purposes, and is much improved in convenience, pleasantness, and apparent size, by the Bay-Window. Double windows open down to the piazza floor in front. *Bk* is a bell-pull to the kitchen.—The *Living* and *Dining-Room*, *D*, is of good size, and is also improved materially by the bay-window. These bay-windows also add much to the outside look of the house, as is seen in fig. 2. Closets are marked at *E* and *c*. This room communicates, by doors, directly with the Parlor and Kitchen, and also, through the hall, with the front and side doors, and the cellar under the stairs. *B3h* is a bell-pull to the third story hall (*Q*, fig. 5), to call servants or others from that floor. The *Kitchen*, *C*, is of ample dimensions, with Pantry, *E*, and small pantry, or hall, *F*, opening out upon the rear steps. The great feature of this room is the convenience of water and washing fixtures, which should be in every house, even though the expense be cut off somewhere else. A "Victory" Cooking Range, *r*, with water-back, connects with the 30-gallon Copper Boiler, *b*. The Force-Pump *fp*, in the corner, draws water from the reservoir through tin-lined pipe, for the sink, *s*, and, when required in a dry season, it fills the supply Tank in the third story (fig. 5). A stop-cock, over the sink, also supplies hot water to it. The two stationary wash-tubs, *w w*, are supplied with hot and cold water pipes and stop-cocks, and large waste pipes. This arrangement saves all lifting of tubs and carrying out water, and furnishes hot and cold water always at hand. The ordinary fire keeps 30 gallons always hot. Where there is much washing to be done, it is equivalent to saving half the labor of one woman. The entire cost (excluding the Range, which saves the cost of a cooking stove), but including all pipes, third story tank, etc., is less than $250—involving an annual interest of less than $20. It is worth $100, or more, to every housekeeper, and will save that sum in hired help, in strength, and doctor's bills. Let all house-builders look to procuring boilers, and stationary wash-tubs. Those who have not looked into it can hardly appreciate the great advantage of them. The tubs, tank, and pipes, are placed on the south, or warmest side of the house, and kept away from the walls with double plastering behind them, which prevent winter freezing. *Ventilators* are in every room in both stories.

Second Story. *Fig.* 4.—Hight to ceiling 9 feet. The wide hall gives a convenient bedroom, or store-room, at *L*. The front chamber, *G*, has two closets, *c*, *c*, which are not only convenient, but with the arch thrown over between them, they give the appearance of a bay-window, and brake up the box-like look of any room. This is intended for the family bedroom. On the right side, over the bed, is, *Bk*. a bell to the kitchen; *B3h*, a bell to the 3rd story hall, to call servants in the morning; *Sk*, a speaking tube to the kitchen to talk with, or give orders to the servants or others there, and, *Sfd*, a speaking tube to the front door, opening just over the bell, to speak with any caller at night, without having to dress and go down. These little contrivances cost no great sum, and are a material help in saving woman's steps. They are built into the walls when constructing the house. *Sk* in *H* is a bell-pull to the kitchen. There are two closets *c*, *c*, in this room. The chamber *I*, has a closet, *c*; room for a full-sized bed at *y*, and a wash-sink at *S-hcw*, with stop-cocks over it in pipes carrying hot and cold water. The waste-pipe is large, so that, if preferred, it can be used as a chamber-slop sink. This arrangement saves all carrying of water up and down stairs, and gives constant hot and cold water on the second floor. If desired, a bath-tub can be placed in *I*, by simply connecting it with the hot and cold water pipes, and its waste-pipe with the sink-waste. The house is designed for a large family (8

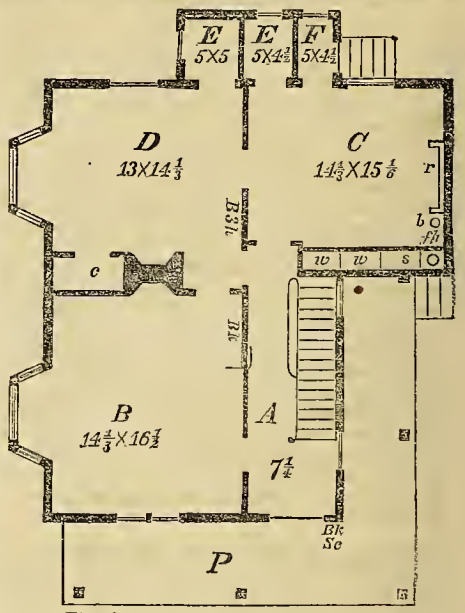

Fig. 3.—FIRST STORY—FLOOR PLAN.

sleeping rooms), but if this room (*I*) is not needed, it can be readily converted into a bath-room, store-room, etc. The stairs to the Third Story are omitted by the engraver. They are directly over the lower flight, the entrance being at the left of the door to *L*, with a half turn in the

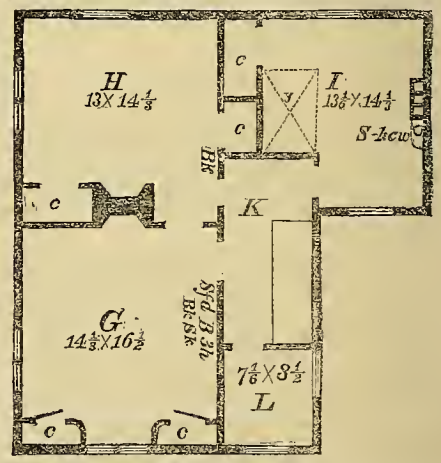

Fig. 4.—SECOND STORY—FLOOR PLAN.

steps. It will be noted in fig. 3, that the Main Hall, *A*, is well lighted by a side window at the foot of the stairs.

Third Story. *Fig.* 5.—Hight to ceiling 8½ feet. This has four finished bedrooms also, as shown on the plan. They are full size to 4 feet high, and the slightly

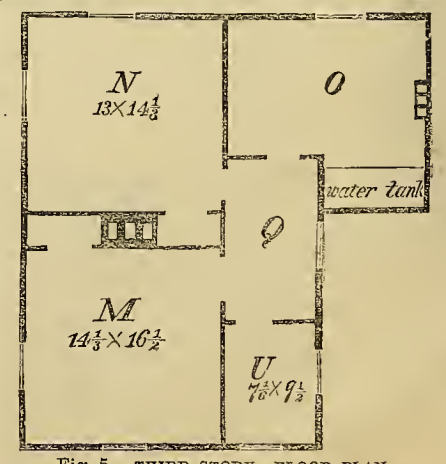

Fig. 5.—THIRD STORY—FLOOR PLAN.

inclining Mansard-roof and dormer windows, render them almost equal to the rooms in the second story. *U*, is nearly large enough for the largest sized bed. The *Water Tank* holding 450 gallons, receives the water directly from the

upper roof, and when full, the surplus water flows down to the large receiver outside the house. The room *O*, is plastered and may be used as sleeping-room, or store-room.

Other Items.—Ample drainage is provided for the cellar, sinks, etc. A Grape Arbor runs back to the privy, which is flat-roofed and enclosed with an L of the arbor and lattice-work screens, so as to effectually hide it from view. The window-caps and cornices are more ornamental than shown in the engravings. The second cornice, at the top of the slate, adds to the beauty of the roof. The mouldings in the first story, (fig. 7,) are a new pattern, designed by S. B. Reed, architect, which secures larger ornamental mouldings with the same cost of timber, than any pattern we have before seen. It is cheap, quickly put up, and does not shrink open. The middle piece is cut from a board less than an inch thick....It will be seen that there is not an inch of waste room in the house, while there is a large amount of room in proportion to the amount of walls. Ten closets or pantries are provided. All doors well grained in walnut; all woodwork, outside and in, 3 coats paint; dining-room and kitchen grained in oak; Parlor in colors; upper rooms white; stair newell, railing, and turned banisters, solid walnut. Gas-pipes to every room, from cellar to attic.

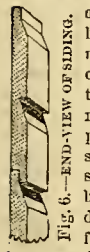
Fig. 6.—END-VIEW OF SIDING.

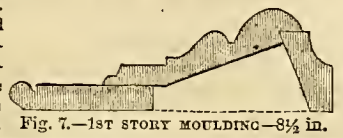
Fig. 7.—1ST STORY MOULDING—8½ in.

Cost.—This will depend upon location, etc.; but with proper economy, it may be built for about $5,000, exclusive of land, everything else included. In this case, all materials are bought of first hands, at lowest wholesale, net cash rates. The work is done by active, expert workmen, by the day, with an efficient superintendent, (Mr. John Donald), with favorable weather, etc., and the cost, all complete, is about as follows: Timber, $250; Lumber of all kinds, $760; Mason-work and material, $970; Carpenter-work, $750; digging Cellar, $15; digging and stoning privy vault, $15; Grading, 35; Painting, $265; sashes and glazing, $110; Blinds, $50; Slate and tin, $280; Plumbing, drains, and Range, $290; Stairs, $120; Stoops and Piazza railing, $165; Arbor and Privy, $60; Fencing, $100; Side-walk, $25; Hardware (nails, locks, etc.), $130; Mouldings, $85; doors, $90; 4 Italian Marble Mantels, $140; Grates and summer-pieces, $60; Gas-pipes, $40; Interest, $110; Carting and Sundries, $185. Total, **$5,100.** Land, $1,000. N. B.—Part of the houses are one foot smaller (6 inches on a room) than the plans here shown, and that is the size here estimated for. The larger size costs about $150 more. With ordinary workmen, and with materials purchased on credit, at retail prices, the cost would run from $500 to $800 more, here. A cheaper style of finish, inside and out, would materially reduce the cost. Among items of cost in these houses, we reckon: best nails at 4½c.; tin roof, 10c. per foot; slating, 14c; gas-pipe, 15c. per foot; timber, 2½c.; siding, planed and grooved, 42 cents per 10-inch board; bricks, $8½ per M; blinds, unpainted, 40c. per foot; parlor moulding, 8½c. per foot; mason work, $4.50 per day; tenders, $1.75; carpenters, $3.00 to $3.25, etc.

Plumbing Specifications.—As a matter of information, not generally understood, we give the specifications for the Plumbing work: "In third story, line Tank (6 ft. long, 3½ ft. wide, 2¾ ft. high), with 4 lb.. per ft., sheet lead; the sides of tank lead to be "tacked": all seams to be heavily soldered, and all inlets and outlets to be flanged over and soldered. Put in 3-inch inlet, with 4-inch overflow, to connect with leader pipes.....In Kitchen, furnish and put up one 30-gallon copper boiler, round, riveted head, Croton pressure, set on Lockwood's stand, properly connected with waterback in range, and a ¾ *aa* lead pipe, with ⅝ sediment brass cock, to connect at the bottom with waste from sink.....By side of Boiler, furnish and put in one cast-iron sink, 30x20, to be supplied with hot and cold water, through ⅝ 2lb. lead pipe, and two brass ⅝ Bibb's cocks. Also, where shown on plans, fit up two wash tubs, with right and left cocks. Waste from wash tubs and sink, through 2-inch lead pipe, properly trapped, to connect with earthen pipe leading to drains. Cold water supply for wash tubs and sink, to come direct from pump; also, run hot water pipe from the boiler up over top of tank, to prevent accident..... Furnish and put in one 2½-inch Douglas suction and force pump, suction to be 1¼-inch 2½ lb. tin-lined lead pipe, leading to within 4 inches of bottom of cistern; the rising main or supply pipe from pump to empty over top of tank, through 1-inch 2½lb. lead pipe, with valve to stop return of water from tank to sink.....Also, where shown on plans, furnish and put in one quarter circle galvanized iron sink, 27x14, supplied with hot and cold water through ⅝ 2½lb. lead pipe, with ⅝ Bibb's cocks. Waste from this sink through 1½ lead pipe, properly trapped, to connect with earthen pipe leading to drain. All pipes to be put up with lead tacks and screws, with all necessary stop-cocks and traps: trap screws to be put in all traps. All to be done in a workmanlike manner, and warranted for one year, damage by frost excepted."

Bitter Butter.—J. G. Caulkins, Dutchess Co., N. Y., says: "When the milk is brought in and strained, set the pans, one at a time, over a kettle half full of boiling water, and let them remain until the milk is *thoroughly scalded*; this is to be repeated the next day, and the milk then set aside in the pantry adjoining the sitting-room or kitchen, and kept comfortably warm until fit to skim; the cream is to be kept in a loosely covered jar, in the same temperature, and well stirred every time fresh cream is added, and churned at least once a week; the butter will be as sweet, and almost as rich as in June or October. If an Orange Carrot be grated fine, a little warm water poured on it, and the juice pressed out, strained, and stirred in the cream before churning, the butter will be of a beautiful golden yellow."

Swelling on Cattle's Jaws.—"W. J. T.," of Florence, Iowa, writes: "I have often noticed a large swelling on the jaws of steers, and sometimes other cattle, which appears very painful, often reaching the size of six or eight inches in diameter, and finally resulting in the death of the animal. Will you tell me the cause of this, and the cure, if there be one?"—Dr. Liautard, of the N. Y. College of Veterinary Surgeons, says: "The swelling on the jaws is probably a disease of the maxillary bone, called *Osteo-Sarcoma*, which is a fibro-plastic degeneration or growth of bone. The causes are generally unknown. At the early stage, the application of blisters or some iodine ointment may prove successful treatment, though, generally, the disease terminates fatally."

To Prevent Dogs Killing Sheep.—In a private letter to an Editor of the *American Agriculturist*, our veteran friend, John Johnston, writes: "If you put a good sounding bell on one of your Cotswold sheep, the dogs will not be so apt to hurt them; but the best thing I ever tried is a little strychnine on a piece of meat—and if the meat is tainted, they find it better. I have often got rid of dogs in this way. Put it around your yards in the evening, and if the dogs come, you will find some dead ones in the morning. I once got two in a morning, and several times one."

Egg-eating Dogs.—"W. C. G." of Boston suggests a specific for Egg-Eating Dogs viz: "Blow an ordinary hen's egg, expelling the entire contents, stop up one end of the shell with wax. Then fill it from the other end with strong spirits of ammonia, or 'Hartshorn.' Seal that end and then put it where the dog can get it. If he crushes it, he will never be desirous of repeating the luxury of egg-eating. After the dog has had one Ammonical feast, a little of the fluid poured into the nest, will remind him of the fact, that, he once was burnt, and also will serve to cleanse the nest from vermin."

Seed Peas.—"J. M. C.," Ohio. Our seed dealers have their peas raised in Canada, and in parts of New England, where the "bug" is not troublesome. It is stated that peas sown in June will be so late that they will escape the attacks of the beetle.

Salting Cabbage Plants.—"G. W. T.," Rahway, N. J., considers salt necessary to the best development of the cabbage, especially in places far from the coast. He finds them more crisp, of better flavor, and to keep better when salt is used, than without. He uses it as follows:—"A few days after setting out the plants, and when they are damp, either after a rain or when the dew is on, I take a small dish of fine salt and walk among the rows, sprinkling a little *pinch* of salt on the centre leaves of each plant; when the leaves begin to grow, I repeat the salting, and when the centre leaves begin to form the head, I apply salt again, scattering it over the leaves; after this I look them over occasionally, and if I find any plants that do not head well or appear diseased, I sprinkle the salt over freely; this will save all such plants. A quart of salt is sufficient for 500 plants in a season, although more can be used with safety."

Field Peas.—"R. C.," of Colorado, writes that he has 300 hogs, and wishes to know "the best variety of pea to sow broadcast, for fattening them the coming season." He would prefer a pea that would give two crops a season, as his land is "hard to keep clean of weeds." We do not know what variety will be best in his climate. We have found the common Canada Creeper as good a variety as any we have grown for feeding hogs. Will some of the Canadian readers of the *Agriculturist* favor us with their experience in raising peas for pigs, the best varieties, etc.?

Spaying cows for milk.—"R. S." Amenia, N. Y. This practice is recommended by those who have tried it as having several important advantages. It secures more milk, of better quality, and the flow is constant. The perils of gestation and calving are avoided. It should not be performed until the cow has reached her full flow of milk—say six years old—and it should take place just before she would naturally come in heat the first or second time after calving. She will continue to give milk, if well fed, in a very gradually diminishing quantity and improving quality, until she becomes fat enough to kill. This will be in from two to five years according to milking and feeding, and her tendency to fatten.

Plum Trees.—M. C. Walton, Penobscot Co., Me., lost two plum trees. The stocks were 4 inches in diameter, and the graft 8 inches. The trouble was caused by grafting on a slow growing and unsuitable stock. With trees of this size we can suggest no remedy. Young trees, if grafted low, might have the junction set below the surface of the ground, and some longitudinal slits made through the bark at the point of union.

Laying Out a Vineyard.—"J. W.," St. Louis Co., Mo., finds laying out a vineyard by the use of a line to be too slow work, and asks if we can suggest a quicker one. By the use of flag stakes, a good plowman will run a very straight furrow. By running furrows in both directions, at the proper distances, the intersections would give the stations for the vines. We cannot say how much quicker this would be than the use of the line, but it would require fewer hands.

Alton Nutmeg Melon.—Wm. Elliot Smith, Alton, Ill., writes that he cultivated fifteen acres of this melon, with very satisfactory results. The vines were well cultivated, bore astonishingly, and the fruit brought good prices. We have no doubt that fine crops of melons have been produced at Alton. The question which interests cultivators is: Is there a distinct variety which originated at Alton?—The drouth prevented our making a fair trial, but we had some good fruit. Others, who received their seeds direct from Alton, say it produced all sorts of melons. Does the Alton Horticultural Society endorse the Alton Nutmeg as a distinct variety?

Yellow-birds.—"M. B.," Williamsbridge, wishes to know how to keep yellow-birds out of his garden, as he finds them very mischievous. A small windmill, so arranged as to make a clatter, might answer. Who has had experience?

Stone Fence Laying.—Thos. Lawson of Missouri asks directions for laying stone fences. It is hardly possible to give directions without knowing the character of the stones, the kind of soil, its liability to be heaved by frost, etc. We have seen old stone fences not less than four feet high, and not more than 16 inches wide at the bottom, perhaps 8 on the top, and laid on the top of the ground at that, which had stood to be gray with mosses and lichens, while other walls 4 feet wide at the bottom, having a base of boulders half sunken in the ground, and laid up in the most careful manner, which after three years was toppling down in spots from the effects of the frost. A light wall will stand on loamy, sandy or gravelly land which has good drainage. As the land contains clay and moisture, the wall should be heavier, and laid with special precautions. An article on this subject in the *Agriculturist* for September 1866, illustrates the different ways of protecting walls from the effects of frost.

Dominique vs. Dorking.—We like the Dorkings greatly, but still consider the characteristic fifth toe a deformity. Our esteemed correspondent, Mr. F. R. Elliott, thinks otherwise, as he writes—"I fail to see the 'deformity' spoken of as being in the 'fifth toe.' To me it is no deformity—only a characteristic of the breed,—as much as the penciling of the feathers is in that of the Dominique,—and when fowls are well bred, that fifth toe is as well separated as the others on the foot. Some years since I bred Dominiques, as well as several other breeds, but never have retained any breed except the colored Dorking over two years, and simply because they have not proved as profitable. My Dorkings give me eggs almost continually, except when moulting. At six months old the male birds dress from five to six pounds each, and the females four to five pounds. They are full, round, and plump for the table, and the flesh is second only to the Game."

Hail.—"J. M.," Goshen, Ind. Hail storms come so suddenly that we know of no precautions that can be taken to save your glass from breakage.

Mixing.—"R. B.," Kinsey, Pa. Potatoes, cabbages, beets, rhubarb, and radishes, will not mix if planted near each other unless you raise seed. Corn shows the mixture the first season. Pumpkins, melons, and cucumbers do not mix with one another; the different varieties of each crop readily, but the mixture does not generally show itself in the fruit until the next generation. Varieties of beans and peas mix more or less, probably by the agency of insects.

Look after the Little Pigs.—Thousands of little pigs are frozen to death every spring. Where the pens are not suitable, it would be better not to have them come until the weather is warmer; but still, much can be done to make an ordinary pen comfortable for the occasion. Batten the sides, or pile a quantity of straw or litter on the outside. Anything that will keep out the cold air will answer. Place some rails or boards across the sleeping apartment three or four feet from the bottom of the pen, and cover them with straw packed in tight. If the pen or sleeping apartment is large, we have found it a great advantage during a cold night to hang, after the sow has made her bed, a couple of horse blankets from the top of the pen around the sow, somewhat after the fashion of curtains on an old-fashioned tent-bedstead. In this way we have saved a litter of pigs in the coldest weather. A few bags of steamed chaff placed around the bed inside the curtains, would be a great help, or, in the absence of these, a pailful of boiling hot water will raise the temperature of the pen several degrees. In a few days, and often in a few hours, if the pigs are strong, the danger is over.

Little Pigs losing their Tails.—"W. O. J."—We think this is caused by a kind of fungus which grows around the tail and "girdles" it. When the tail is girdled all around, there is probably no remedy. But if taken in time, the tails may be saved. Try a little crude petroleum. It may prevent, if not cure, the trouble.

Hen Lice on Horses and Cattle.—Hen lice never stay long upon a human being, hence it is no wonder that people argue that they do not long annoy horses or cattle, if by any means they get upon them. This is a mistake. Cattle, horses, and hogs, kept near chicken roosts which are infested with the little wandering louse, are often greatly annoyed. Dr. Linntard assures us that he has known a horse to be infested with them for one or two months, and that they were present in such numbers that he felt at the time that they must be breeding. He compared them under the microscope with lice from hens, and proved them identical. Hogs will scratch and rub themselves almost raw, if similarly annoyed, but cattle do not seem to mind it much. We think any kind of soap-suds will remove them from other animals, and carbolic soap banishes them for weeks from both the hens and their roosts.

Brush Chopping Machine.—"D. L. H.," Ohioville, N. Y. Tim Bunker is not in the habit of drawing upon his imagination for facts. Parties manufacturing these machines to go by horse or steam power, should put them before the public by advertising. They have a good thing and should let the world know it.

Best Oil for Carriage Wheels.—"F. S. C.," Cambridgeport, Mass.—We have used castor oil, and think it better than any other oil for smooth-running axles. For wagons and carts, tallow is equally good.

Carriage Tops and Curtains kept soft with neats-foot oil, will not crack. Patent leather, should never be used about carriage tops or harnesses in places where it has to be bent.

Black Bass.—"B. H. E.," Pine Plains. The best months to stock ponds with black bass, are October and April, but it can be done at any time when the fish can be caught. They hybernate in holes, and do not take the hook in winter. In hot weather it is difficult to remove them, but with ice and care it can be done.

Oil Barrels for Cider.—"E. R.," Rushville, O., wishes to know if barrels which have contained carbon oil, can be rendered proper to use for cider.

Comparative Value of Raw and Cooked Food.—A correspondent in Illinois, asks for a table showing the comparative value of raw and cooked food. We know of no such table that takes a sufficient account of attending circumstances, to be reliable. So much depends on the condition of the animal itself,—on the conditions under which it is kept,—and the quality of the food before cooking, that it is very difficult to determine to a nicety, just how much benefit is ascribable to the cooking. At the same time,—in the opinion of all practical men who have tested the matter in their own operations,—thorough cooking is held to save from one-quarter to one-third of the food. Grouven,—a German farmer,—steams food for 80 head of cattle. He gives the food at about the temperature of the blood. His brother, Dr. Grouven, says: "Had it been served cold it would take the cattle from half an hour to an hour to raise their food to the temperature of that which was steamed. The food is thus rendered not only easier, but quicker of digestion. Scalding, allows cattle to swallow food quickly, but does not make it more digestible. Steamed food is already half digested, therefore, rapid swallowing is not injurious." Boiling food, lies between the two methods; it has the disadvantages of the one, without the advantages of the other.

Remedies for White Grubs.—A correspondent writes: "A good coat of unrotted manure, plowed in six or eight inches deep, is almost a specific against white grubs in corn or potatoes." We suppose the grubs work in the manure and leave the corn plants alone. Plowing under clover, immediately before planting, often has the same effect. The same writer also says: "I once had a piece of meadow that had been destroyed by grubs. I turned some pigs into the field and they devoured the grubs with a will, and left the meadow in good condition to re-seed."

What to do with Gas Lime.—1st. Haul it upon the land and spread it, breaking the lumps, at any time, when it can lie exposed 6 or 8 weeks. 2d. Compost it in a big flat heap with sods, muck, leaves, or wood mould, where it can be occasionally stirred or worked over with a plow. 3d. Lay it in heaps and shovel it over now and then for two or three months before using it upon or near growing plants.

Stamps upon Notes.—"Many Farmers." The provisions of the law are as follows: Bank Checks, Drafts, or orders on Bankers, or other parties, payable at sight or on demand, *for any amount*, require a 2c. stamp; Bills of Exchange, Drafts, and orders for the payment of money otherwise than at sight, *all* promissory notes, checks, receipts, memorandums, printed or written, showing evidence of an amount of money to be paid on demand, or at a time designated, for one hundred dollars or less, require a 5c. stamp, and for every additional hundred dollars or fractional part thereof, another 5c. stamp.

"Market Gardener," Rockford, Ill., in growing market and seed crops, has much of his land unoccupied from August 1st until June, and wishes to know what he can sow to plow under as a green crop. Buckwheat would answer, as would peas and oats, sowed together, to be turned under in the fall. Rye would do best for those parts which are to be plowed under in spring.

Sledge-hammering Bones.—This is easy to write, but, work at it an hour, and see what a small heap of broken bones you will have for the labor. Bones will decay somewhat in a good hot compost heap, and in overhauling the heap, may be pitched out, and, when dry, will crumble under the sledge. On the same principle they may be put into half a molasses hogshead, covered with hard-wood ashes and pretty well moistened. Those which do not soften after two months, so as to be easily mashed, may be sledged.

Lime and Salt Mixture.—"A. C.," who has mixed 100 bushels of oyster-shell lime with 12 bushels of refuse salt, wants to know how long before the mixture will be fit to use, and what to do with it. —The true lime and salt mixture is made by using a strong brine to slake lime, in which, parts of each undergo chemical changes. In such a mixture as our friend has made, the ingredients remain unchanged, and it is but little, if any, less in value than if made as above. It may be used at once, and applied directly to the soil after plowing, or mingled with muck or other vegetable compost.

Questions About Ashes.—"Subscriber" asks, 1. "Are strong unleached ashes good to put in the hill with potatoes?"—No. Put them on the hill when the plants begin to break the ground. 2. "Are they good to put in the hill with corn?"—Yes. 3. "Are they good manure for cabbages?"—Excellent. 4. "Are they good for sweet potatoes?"—Doubtless. 5. "Are they good to compost with animal manures?"—No; except in small quantities, when plenty of dry muck or soil is employed. From strong nitrogenous manures ashes liberate ammonia. It is a good plan always to mix soil with ashes before using them in contact with seed.

Hen-house Manure is best preserved by being mixed with dry soil and worked over as often as it heats, until it is fine. It must be used with caution, even if mixed with four times its bulk of earth.

Cost of Keeping Sheep.—This depends on the kind of sheep and how they are kept. We recently heard a farmer remark that his sheep last summer cost him nothing. They lived on the summer-fallow, and this, he said, produced more feed than his pastures—which is saying little for his system of fallowing. When pasture costs little or nothing, and when sheep are wintered principally on straw, with say a bushel of grain a day for 100 sheep, most farmers would not estimate the cost of keeping a sheep at over $3.00 a year. But when sheep are pastured on grass, that could be cut with a machine, and a good crop of hay obtained at slight expense, the cost of pasturing a sheep is very considerable. The English farmers estimate that good pasture will keep 5 Long-wooled sheep per acre, which would be equal to about 8 ordinary Merinos. In the winter, a sheep will eat about 3 lbs. of hay per day for each 100 lbs. of live-weight. This would keep them in a fair store condition. If fattening, they will require one lb. of grain or oil-cake per day in addition. On farms where straw is abundant, comparatively little hay is fed, and the cost of wintering is much less. Charles W. Taylor, in an essay, written for the Report of the Department of Agriculture, for 1864, states that he bought 100 grade Southdown and native Cotswold sheep, in November, for $5.00 each. They averaged 100 lbs. each. He fed them for 12 weeks. They then weighed 125 lbs. each, and he sold them to the butcher for $12.50 each. He gives the cost of feeding as follows:

17 tons of hay, @ $10 per ton.....	$170.00
138 bushels of Indian corn @ $1.....	138.00
1,050 bushels Swedes and Mangels @ 10c..	105.00
Three months labor and attendance.....	45.00
	$458.00

This is over 38 cents per week for each sheep. In Mr. Julian Winne's experiment in fattening sheep in winter, the food of the Leicesters cost 44 cents a head per week; that of the Merinos 36 cents—he has fattened sheep for many years and has found it very profitable.

Barley on Mucky Land.—"L. H. R.," Mich., asks if barley will do well on mucky land with a clayey subsoil.—No. It is the worst crop that could be sown on such land. Oats or corn will do far better.

"What is the Cheapest Way of Cutting Hill-side Ditches?"—We really cannot answer this question. It is precisely what we would like to find out. We know of no better way than to get the most skillful man that can be found, mark out one of the ditches, commencing at the outlet or main ditch in the lowest land, and running at right angles up the slope. Let him dig one ditch, you being with him to see that he works faithfully and energetically. In this way you can ascertain how much it is worth a rod to dig the ditches, and can make a bargain with this man and with others for the performance of the work by the rod. This is almost always cheaper than having it done by day work. Let them do *all* the work except laying the tiles. This you had better do yourself, or have it done by a careful man by the day. But let the men who dig the ditches understand that they must make the ditch ready for the tiles. If they do not do the work right, let the man who lays the tiles make the bottom of the ditch smooth and level, and *deduct the cost* from the pay of the ditchers. Let them understand this, and they will soon learn to make the ditch deep enough, and ready for the tiles. Unless the land is very stony, you ought to get a three-foot ditch cut and filled in for 25 cents a rod. But very much depends on the character of the soil. In the spring, when the ground is saturated with water, it is much easier digging than when the ground is dry and hard.

Water Filters.—Samuel Pitchforth, Utah. —No filter will remove sulphate of lime from water impregnated with it. A filter made by putting layers of gravel, sand and gravel in a tight keg with a faucet in the bottom, will remove any "muddiness" and almost any turbidity. It is well to employ a layer or two of charcoal, not smaller than wheat, on each side of the sand layer, so that the filter will be gravel, coal, sand, coal, gravel. This removes organic impurities to a great extent.

Hay or Straw Baskets for Starting Plants.—Numerous devices have been suggested to hold earth in which to start vegetable and flower seeds in window boxes or in hot-beds. These are designed to contain a portion of earth in which the plant grows until it can be removed to the open ground where it is placed without disturbing its roots. We have published a number of these; boxes with loose partitions, paper boxes, shells of turkey's eggs, birch-bark boxes, and hollowed turnips are among those that recur to us now,—not forgetting small squares of sod, the simplest of all for hot-bed use. "Sheet-Anchor," a retired sea captain who is an enthusiast in horticultural matters, sends us the following: "Take a tin quart can, prick a small hole in the bottom and fill with rich earth. Lay three wisps of salt hay, straw, or similar material upon the earth so that they will cross one another, bend the ends of the hay down around the sides of the can, and bind it there with twine or straw. Turn the whole bottom upwards and cut the ends of the hay even, withdraw the can and you have a neat little basket of earth. These baskets are to be placed in a box close together, and when the time for transplanting comes, knock off a side of the box and slide them out."——We should think a smaller can than a quart one would answer. The can must have straight

sides in order to allow the earth to slip out. A preserved fruit-can will answer; the top can be removed by placing the can on a hot stove until the solder is melted.

Peanut Culture.—The Peanut, or Pindar, as it is called in some parts of the country, is now attracting the attention of cultivators in Virginia and other Southern States. In April of last year, we gave an account of a North Carolina planter's method of growing them. Since then, the Department of Agriculture has published its Report for 1868, in which is detailed the method followed in Virginia. As this volume is not in the hands of all those who are making inquiries about peanuts, we will give an abstract containing the essential points. The plant is found to succeed well in Virginia; it is not ascertained how far north it may be cultivated with profit, but it is suggested for trial in the tide-water district of Maryland, and in Delaware, and the southern part of New Jersey. The Virginia peanut is preferred to the Carolina or African, as being larger and heavier. It requires two bushels to plant an acre. Well cured seeds are essential. The soil selected should be friable and light; red or chocolate-colored soils stain the nuts and impair their value. Land that has been in corn, or other hoed crops, except sweet potatoes, is preferred, and if it has not been heavily marled for previous crops, should be dressed with 150 bushels of marl or 50 bushels of lime to the acre. These may be sown broadcast or strewed in the furrow over which the beds are to be raised. It is said that the peanut will not fruit, except on a calcareous soil. Mr. Henry M. Butts, of Southampton Co., Va., makes the peanut crop a part of a rotation. 1st. Peas, the vines of which are plowed under in September. 2d. Peanuts, the land being dressed with lime and superphosphate. 3d. Sweet potatoes, with a liberal supply of stable manure. 4th. Peas, to be followed by peanuts, with lime, as before. Mr. Butts' crops by this course have averaged 100 bushels to the acre, and in 1867 he sold 1,300 bushels of prime nuts from ten acres. The crop ranges from 30 to 100 bushels to the acre, the average being placed at 50 bushels. The ground is plowed in March or April to a depth not exceeding 4 or 5 inches. It is plowed thus shallow, because the nut does not form until the stalks or pedicels reach firm earth; besides the harvesting is much facilitated if the nuts are near the surface. The time for planting is, in Virginia, from the 10th to the 20th of May. The details of planting and cultivation are deferred to another month.

Farming Prospects in California.—A correspondent writes: "Farming in California for fifteen years was, and indeed to a great extent still is, conducted upon a most improvident and lazy system. The farmers were simply grain raisers. They neither made their own bacon, butter, and soap, nor raised their own vegetables, eggs, or fruit. They burnt the straw of their fields as soon as the grain was taken off, and thousands of cattle perished for want of grass in the drought of the winter of 1861-2, which would have been kept alive had the straw of the previous autumn been preserved. These and many other reckless practices characterized the California farming system of the decade between 1857 and 1867, and of course where the farmer was improvident and careless, his home was a cheerless and uncomfortable one. As a class, however, they have lately awakened to the necessity of reform, and to greater independence of the town grocer and trader. The straw is now generally preserved, and if drought does not make it invaluable, the straw rots sufficiently in about three years to constitute a most valuable and much needed fertilizer. Rotation of crops, which was not dreamed of even so lately as five years ago, is now practised by many, though not to the extent, which the exhausted state of the soil of the old farms calls for. Over 150,000 acres of land were taken up last year in the Sacramento and San Joaquin valleys alone; mostly by small farmers or by capitalists in large tracts, for cattle and sheep ranges. The great valley of California (the Sacramento valley) is now being supplied with a railroad—the California and Oregon line—which road will supply the greatest present railroad need of California. Much of the grain of the coast valleys was blighted in May last, and was poor in quality. It sold for but $1.12½ to $1.20 per quintal. The grain of the two valleys named above was, however, full and heavy, and sold for an average of $1.35 per quintal. There are yet many thousands of acres of land in the southern and southeastern counties of the State, and in the upper portion of the Sacramento valley, near to where the California and Oregon Railroad line will pass, which are yet either Government land or which can be purchased from the owners at $2.50 to $5 per acre. Those who settle in California, and bring with them that care of the land, thrift, and economy, which prevail in New England, will do fully as well there as in any State of the Union. Riches in California must be sought by the safe and sure channels of patient industry and economy, and not by unhealthy and rapid means."

Onions—Seeds and Sets.

It is not practicable to publish each year full accounts of every special culture. Those who have asked us to give an article on onion raising, are referred to the *Agriculturist* for April of last year, and to the Onion pamphlet noted in our book list. These give the details of preparing the soil and raising the crop. It is of the first importance to those who undertake the culture of onions, that they secure good seed. It is better to pay a high price for proper seed, than to take that which is inferior for nothing. The onion crop requires too much labor to allow one to run the risk of sowing poor seeds for the sake of saving a few dollars. Our leading dealers are fully impressed with the importance of sending out good onion seed, and that furnished by establishments of good reputation can generally be relied upon. Many correspondents do not seem to understand the difference between seeds and sets, some of them, speaking of sets as "seed onions." The seeds are the produce of the flower; they are by some called "black seed," to distinguish them from sets. When the seeds are sown in suitable soil and climate, bulbs are formed, the top dies away, and we have the ripened bulb—the onion as we usually see it in market. If these onions be put out the following spring, leaves are produced, afterwards a flower stalk appears, which at length bears seed, and the onion completes its career, exteeding over two years. When the seeds are sown in a warm climate, the bulbs have their development arrested quite early by the heat and dryness of summer, and they ripen up when no larger than a hazelnut, and from that down to the size of a large pea. These little, prematurely ripened onions are what are called *sets*, and are harvested and kept with the same care given to large onions. When these little onions, or sets, are put out the following spring, they are not able, like large onions, to throw up a flower stalk and bear seeds, but they go on and grow and gather strength for the effort, forming a large bulb, which, at the end of the season, is like that grown, under favorable circumstances, in one year, from the seed. An onion set, then, is a small onion bulb which has been checked in its development, and when planted will resume its growth. If the sets are too large, or have not been raised under favorable conditions, instead of going on to form bulbs, they will produce flower stems. The large onion crops of the Northern States are raised from seed. The sets are used by market gardeners, who sell their onions mostly in the green state, and by those who wish to get a crop of ripe onions early, as they are a month or more earlier than those from seed. South of New York, even no farther than Philadelphia, it is difficult to raise a crop from seed, and the sets are resorted to. Sets are raised in greater perfection farther South than they are in the onion districts of the Northern States. In the colder localities, they are longer maturing, and are more likely to run to seed. To raise sets, shallow drills, about two inches wide, are made 9 or 10 inches apart, and in these, seed is sown so thickly as to almost cover the ground. When the dying of the leaves indicates the ripening of the bulb, the sets are pulled and stored in an airy room, or loft. They are spread in layers of from 2 to 4 inches thick, and when severe weather comes they are covered with 6 inches of hay and left until spring. The sets are planted early in spring, in rich soil, prepared as for a crop from seed. Rows are marked out from 9 inches to a foot apart, and the bulbs thrust into the ground, right side up, three inches apart. The rows are covered with the foot, and afterwards rolled. The cultivation and weeding is the same as for onions from the seed, but less is required. The price of sets varies with the quantity in the market, and ranges from $5 to $12 per bushel. The sets of the Yellow Danvers onion keep better than those of other varieties. Those of white onions are the most difficult to preserve, and must not be spread over two inches thick when stored.

Bee Notes.—*By M. Quinby.*

Apiary for March. Bees Out-doors.—Raise the hives and clean the stands. Brush dead bees from among the combs and cut out mouldy pieces. Look to the strength of your stocks, unite weak swarms and feed light ones. The best way to feed now is, to open the holes in the top, put thereon honey sealed in the comb, and cover with a close fitting box. Scatter unbolted rye flour in large shallow boxes near the hives before the bees get a taste of pollen from the flowers. Look out for loss of queens—about one in fifty is the average. Immature bees and eggs on the bottom board are the indications of her presence. With movable combs she may be readily found. No matter how strong now, a queenless stock would probably run down by swarming time. If such a hive should be neglected and chance to be diseased, it would undoubtedly be robbed and the fearful pestilence spread broad-cast. In uniting swarms, hives partly or entirely filled with combs are left. If these are clean and in good condition, save them with care. From ten to fifteen pounds of honey are required for the secretion of one of wax, hence, *never melt up good worker comb.* Such, thoroughly frozen in the winter and kept protected from the moth will keep indefinitely, but if the bees are taken out too late to freeze it, fumigate with sulphur occasionally. Put swarms into such hives, taking special care not to break the combs when new and heavy with honey.

Bees In-doors.—Set out on the first warm day—a few at first, as far apart as possible, more in two or three hours, and so on. Place them as nearly as possible on stands occupied by same hives last year. Bees will probably mix some with the utmost care; examine in a day or two, and equalize by causing strong and weak to interchange stands. If cold weather supervenes, the weak ones should be set back till it passes. Don't tempt the bees to rob by leaving refuse honey or comb in their reach.

Preparing the Hives.—A correspondent asks: "Is it necessary to wash the inside of a hive with hickory leaves dipped in salt and water?"—No. Let the hive be clean and rough on the inside as the saw leaves it, and the bees will like it well enough. I have hived thousands of swarms in such hives and rarely had one leave.

Preventing Swarming.—Will Mr. Q. please tell us how to prevent swarming, especially the after swarms?"—Immediately after the issue of the first swarm open the hives, (you must have movable frames for this,) destroy every royal cell but one. If at the end of five days this has not hatched, look over the combs again and destroy every royal cell that may now appear, excepting the one saved at first. But if the oldest of the young queens is allowed to hatch and begin piping before anything is done, the fever of swarming will rise to such a pitch that you cannot allay it, and the old hive may even be left destitute. The best way is to make the first swarm an artificial one before, or soon after queen cells are started. Then, at the end of nine days destroy all cells but one as above. To prevent first swarms, clip the wings of the queen and put a "queen yard" in front of the hive—a shallow box some two feet square, with edges of tin projecting inward, so that no bee can get out and away from the hive without flying. This will of course prevent the escape of the queen, and swarms will return.

Ogden Farm Papers—No. 3.

The new chest for steaming food (425 cubic feet) holds, when well packed, *four full days' rations* for the following stock, (receiving no other food except a little grain to horses and 2 qts. of meal daily to milking cows): 2 mules, 7 horses (partly boarders), 2 colts, 2 oxen, 3 steers and 1 bull, 13 cows, 3 2-year-old heifers, 7 yearlings, 9 calves. The chest is packed through a scuttle from the hay floor, and its contents are removed through a side door opening on the feeding floor gangway. The steam is admitted under a loose false bottom, which allows it to spread under the whole mass. It is necessary to have the steam up when the packing is begun, and occasionally to turn it on until that, which is already in the box, is heated up and softened,—that is, until the steam begins to show itself at the top of the mass. This enables us to pack the chop much more firmly, getting more in the box, than if it were not so softened. At the last steaming I used steam at 90 lbs. pressure, and found it even more satisfactory than at a lower pressure. The heating up was much more rapid (which is not of very much consequence), and the temperature to which the fodder is raised is considerably higher and the cooking more thorough.

My short experience fully justifies the excellent article of Messrs. S. & D. Wells, in your new Agricultural Annual—except in one point. They say that the cooked food is not so well eaten after the second day. I find no difference, even at the end of the fourth day. The scuttle is not taken off at all while there is any hay in the box, and the side door is open only while food is being taken out. Except at these times it is kept constantly closed, and the mass inside is kept much too hot to undergo any fermentation or souring. Even the last bushel of feed removed is too hot to be handled with comfort—and it is eaten as readily as the first,

If it is only a beginning that is to be made this year—go straight for a crop of drilled corn. Never mind about the oats and the clover. If you have got on until now on your ordinary pastures, you can make out for the first two months of one year more, and it is desirable that, as this is an experiment, it be made as convincing as possible. One may question, whether it pays to raise oats for green cutting, (though the question will be answered in the affirmative by any one who will give it a fair trial,—if he can command the necessary labor,) but no one, who has once raised a really good piece of drilled corn, and has marked its influence on his herd, can doubt that it does pay to raise corn for soiling.

I don't advise that any beginner go largely into the business,—probably few would be able to do so without making some change in their plans, which ought not to be made temporarily; —but any farmer can afford to devote half an acre to the trial. This should be manured as soon as possible, not later than the middle of March, the manure being thickly and evenly spread over the surface, and so left until at least one drenching rain has washed its soluble parts into the ground. If the land is in grass, nothing more should be done to it until the middle of May,—especially, should not one blade of its grass be eaten off by pasturing animals;—but if it is fallow land, as soon as it becomes dry enough after one heavy rain has fallen on the manure, it should be thoroughly plowed, but *not too deeply*, and after a few days, rolled or harrowed (or both). It should be plowed and harrowed at least twice more before planting time,—which should not be earlier than May 15, in the latitude of New York, or not until settled warm weather anywhere. The more frequently it is plowed, and the finer the soil is made, the better.

The drills should run north and south rather than east and west, and they should be marked out about 3 feet apart. For seed, get the best "Southern White" corn, (half an acre needs two bushels), and sow it thickly in the rows, occupying a width of two or three inches, and dropping not less than 25 to 30 kernels to the running foot. If this does not use up all of the seed, go over it again. It cannot be too thick in the drill. The thicker it stands, the finer the stalks will be, and the more completely it will be eaten.

As soon as the corn is up, it must be cultivated and hoed clean, and the cultivator should be run through it once a week, as long as there is room for the whiffle-tree between the rows. After that it may be laid by. As this is an experiment, let the crop stand until it begins to tassel out. It will then be about six feet high, and will completely occupy the ground.—Now take the cows from the pasture; tie them in well ventilated stables or in sheds; give them their liberty in the yard, two hours in the morning and two hours in the afternoon, when it does not rain; feeding them, five times a day, as much of the corn as they will eat up clean; and note the effect on the milk, and on the manure heap. If it don't pay, don't try it again; but don't sow the corn broadcast, on poor land, and let the weeds choke it down, for I know that that will *not* pay. Fodder corn, needs rich ground, thorough and frequent cultivation, and ample sun and air;—without these, it will be a failure; with them, it will be the most profitable forage crop that can be grown.

In saying that land for this crop must not be plowed too deeply, I have in mind a notable failure of my own, my last crop of corn (10 acres) having been nearly ruined by too deep plowing. The surface soil for a depth of four or five inches was good enough. After the draining of the field was finished in September, I gave it a very heavy dressing of manure from the cellar, and left it for the autumn rains to work upon. In November the land was broken up by a double team to a depth of eight inches—a subsoil plow following in the furrow. The subsoil that was brought to the top was a cold blue clay that had been water-logged for years, and it was beyond the power of one season's wintering to make it fertile. The consequence was, that the corn came up slowly, ripened slowly, and made less than half a crop, that was got in in bad order on account of its lateness. I am satisfied that if—with the liberal manuring I gave—I had plowed only four inches deep, my crop would have been a good one. That the land will be better in the future for the deep plowing, I have no doubt, but if I had left the deepening till the next time of plowing, I would have saved an important crop, and probably another year's action on the drained subsoil,—helped by the cultivation of the corn, —would have so changed its character that it might have been brought up without harm. When I say "too deeply," I mean bringing up so much of an unprepared subsoil, as to interfere with the growth of the current crop. Many soils cannot be plowed too deeply,—mine can; —and corn will surely suffer from being compelled to germinate and make its early growth in an uncongenial soil. It likes the abundant vegetable matter and the porous condition of the top-soil. It should have a chance to send its roots beyond the reach of drought, which may best be given by the use of a subsoil plow, that loosens the under soil without bringing it up.

Horse Papers for Farmers.—No. 3.

BY A SPECIAL CONTRIBUTOR.

A good breeding mare, brought into good physical condition, and served by a thoroughbred stallion at a cost of from $25 to $100 for the service, is too valuable a piece of property to be allowed to shift for herself and take her chances in a disorderly farm stable;—neither should she be turned to pasture and allowed to pass the summer in the unprofitable labor of kicking away the flies. She is in the best condition for the performance of regular work, and will be far more benefited by it than by lying idle in the stable, or skylarking in the field. Moreover, she needs grooming and grain, which she should work to pay for.

It should be remembered that we are now engaged in carrying out a definite plan which has for its object the production of a superior horse. The mare has been selected with care, and sent (at some expense) to a "four-miler," and the young colt is already susceptible to our attentions and to our neglect. The fœtus can get its development only from the dam. The influence of the sire is secured, and it will make no difference to the foal what becomes of him; the destiny of his progeny lies for the present solely with the mare. In proportion as she is well fed, well groomed, well exercised, well housed, and generally kept in a healthy condition, will the foal thrive and become fitted for a life of usefulness. If she is starved, neglected, allowed to go dirty, or deprived of proper exercise, the foal will have all these disadvantages to overcome after he is born,—and it is doubtful whether he will be able to entirely overcome them, whether he will ever be so perfect an animal as if he had had no drawback before birth.

If it were a question of a future race-horse, possibly the mare would have a groom detailed to her own especial care. She would be fed and watered by the clock, exercised with great care and with unvarying regularity, and made the object of the daily observation of a man skilled in the care of the race. All this would be too troublesome and too costly business for a farmer, and would make the colt too expensive. Fortunately it is not necessary. Such extra care may add the grain of strength and constitution that will enable the future race-horse to win his race "by a neck;" but much less than this will produce an animal good enough for the best service of the farmer. The infallible rule for the case under consideration is to *keep the mare in the best possible condition for work;* for the state of health that this implies is that which will give us the best colt at a moderate cost.

During the first eight months of pregnancy, nothing further will be required than to keep the mare in good condition for summer and autumn work. After this,—usually in the winter and early spring when farmers are too apt to leave their horses idle and to give them only dry hay in their stalls, some extra attention is desirable. Especially is it important to feed from four to eight quarts of grain daily, and to keep the mare in as regular exercise as the weather will allow. After this time (the eighth month) especial care should be taken to avoid too hard work, or to allow any over-exertion. During the last four weeks the mare should be allowed free movement at all times, being allowed a box stall if possible, or being kept in a small enclosure, open only to the south or southeast. It will be especially injurious to keep her tied in an ordinary stall for days together without exercise. It would be better even, to give her *light* work up to the very day of foaling.

In this operation she should be watched without being disturbed or annoyed by over attention. In ninety-nine cases out of a hundred, nature, unaided, will be her best help; but in the case of a false presentation, or of difficult labor from any cause, it may be necessary to call in professional assistance. In such cases, recourse should be had to a regular physician, rather than to the average "cow doctor" of a country neighborhood,—though the two together may be better than either one alone.

After the colt is born, it and its mother should be left entirely to themselves for about six hours or over night. After this the mare should have a thin, warm, bran mash, and this should be repeated daily for a week, unless the season is late enough for grass to be cut for her. For two days after foaling she had better be kept quietly in her box stall. After that time, the foal will be strong enough to take a little exercise, and they may be turned into a small enclosure during the day-time, except in stormy weather. After the colt is a month old,—if the weather has become settled,—they may be kept in good pasture except while the mare is at work, then the colt should be kept in the stall to prevent him from running.

During the first two months the mare should be taken in to suckle him as often as once in three hours, and during the next three months he should not at any time go more than four or five hours without food.

It will be best to wean the colt partly on oats, which he will soon learn to eat from the same box with his mother. And two quarts of oats per day, from weaning time until he is turned out to grass as a yearling, will tell throughout his whole life in his form, size, and vigor.

The Flamingo.

The Flamingo forms one of those wonderful zoölogical links, which both delight and puzzle naturalists. It may be said to be a goose that does not swim, and it is a wader with webbed feet, besides it picks up its food, holding it in the spoon-shaped end of its upper bill. In its instincts, and modes of flight, it much resembles the Wild Goose; in many of its habits, also, it resembles the crane and heron; so it really occupies an intermediate position between the waders and swimmers, besides being exceedingly curious and interesting in other respects. When Europeans first landed upon the West India islands, they found these great red birds arranged in phalanxes along the coast like ranks of red-coated soldiers. They were so tame then, that it was easy to approach them; and many years after, it is said, a sportsman might secrete himself and shoot one after another for some time, before the flock would take the alarm. Now, they are the shyest of all wary things. When they pass over the water, they fly low, but when they approach the land, up they go, away above the reach of shot. On alighting, they do so in shoal water, where they feed, standing erect, if necessary, but easily reaching the bottom with their heads. The legs are very small, and as the birds are heavy, they are able to stand in swift currents of the in-coming and receding tides. When feeding, as described, the heads are long submerged, and of course the birds would be exposed to attacks from their enemies, and especially from man, were it not that sentinels are posted at either end of the long row of feeders, which stand erect, and sound a trumpet-like alarm in case of danger. Then the sentinel leads off and all follow in Indian file, or in two lines, forming an angle, like wild geese, which they always do when on the wing. The motions of these birds are peculiarly graceful, although they are so tall and apparently unwieldy. Their heads and necks are swayed about with a gentle deliberation and ease, which is most striking when they dress their feathers.

The best known species of Flamingo are the American (*Phœnicopterus ruber*), and the European or Mediterranean (*Phœnicopterus antiquorum*). Their size and habits are very similar, the European being somewhat the larger. In color, ours is much the more intense, approaching scarlet; while the European one is of a rosy-white, except upon the wings, where the color is much deeper—sufficiently crimson to give good ground for the generic name, which means crimson-wing. These beautiful birds do not long survive in captivity, and of those from which the drawing for our engraving was made, none are now alive. They were imported by Mr. Charles Ritchie, of New York, from the Zoölogical Gardens at Antwerp, at a cost of $350 per pair. The two larger birds in the engraving are of the European, and the smaller one of the American species. The flesh of the Flamingoes is esteemed, and among the ancients the thick, fat tongues, were regarded as the most delicate of all articles of food.

EUROPEAN AND AMERICAN FLAMINGOES.

The American Panther.

That the American Panther is widely distributed, is shown by the various names it has received. In some localities it is known as the Catamount and "Painter,"—a corruption of Panther. By the Spanish American inhabitants of Mexico and California, it is called Leon (Lion). It is Pagi in Chili, and Puma in Peru. Indeed, it is found from latitude 50° or 60° north, to the extreme point of South America. It is a true cat (*Felis concolor*), and with the exception of one found in Louisiana and farther south, is the largest of our five species. Its weight sometimes reaches 150 pounds, and it measures about seven feet from the nose to the end of the tail. It is covered with short, compact hair of a brownish-yellow on the sides, and of a dirty white on the under part of the body. In color, the panther very closely resembles the common deer, and it is said to change like that with the seasons. The tail is more than half as long as the head and body together, and has a brushy tuft at the end. The young animals are spotted and barred, but the adult ones are without markings, except a black patch on the upper lip, and dusky black upon the interior of the ears. The animal is more abundant in mountainous districts than elsewhere, and is rather shy in its habits, concealing itself among the rocks in the daytime, and prowling about at night. It is very destructive to colts and calves, and has been known to attack the full-grown animals. It climbs trees readily, will lie in wait crouched upon a limb, for deer to pass, and drop suddenly upon them. It is stated that the Panther has been known to attack and kill a man, but we have met with no authenticated account of its having done so unprovoked. It is said to be easily tamed, and in captivity its habits are much like those of a cat. In California and the adjoining parts of Mexico, Panthers are very destructive to domestic animals, and strychnine is extensively used to poison them as well as the wolves. The early Spanish Missionaries had great difficulty in sustaining themselves in Lower California, as the Panther destroyed their domestic animals. The Indians would not kill or disturb the Panther, as they had a superstitious regard for it, for the reason that they depended upon it for a good part of their food. By watching the buzzards, who always soon scent out a concealed carcass, they could discover where the Panther had hidden that portion of his prey which he was unable to devour, and regale themselves upon the fragments.

THE AMERICAN PANTHER.—(*Felis concolor.*)

Walks and Talks on the Farm—No. 75.

Last spring the Commissioner of Agriculture sent me two bushels of "Anautka spring wheat from Russia." I mentioned the fact at our Farmers' Club, and some of the members intimated that they would like to be "connected with the Press," and be in the way of receiving such favors. I told them that if any member of the Club would take the wheat, sow it and report the result, they were welcome to it. But not a man accepted the offer. I like to receive and try new implements, seeds, etc., but so far as the *profit* is concerned, any man shall have it who will supply me with postage stamps.

I have no sort of interest in the matter, but I often think our old, established, agricultural implement manufacturers and seedsmen make a great mistake in not availing themselves of the agricultural papers, to let farmers know where they can get good, thoroughly tried implements and machines. They too often abandon the field to the enterprising advertisers of some new invention—and it is a great evil under the sun. Sometime since, the President of an Agricultural College, who was going to deliver an address, asked me to furnish him a few facts in regard to some of the most striking discoveries in agricultural science and invention. "I do not think of any for the moment," I replied, "and, in fact, I have ceased to look for them." He seemed slightly disgusted. "There is one new thing," said a prominent agricultural gentlemen, "that is destined to accomplish great results, and that is the ——— Ditching Machine. You ought to see it," he said, turning to me, "it is a really capital thing." "Yes," I said, "the inventor came to see me about it." I was digging ditches at the time, and he said "I could save half the expense by using one of his machines." "I think it is a good thing," I replied, "and will make you the following offer: These ditches cost me 25 cents a rod. Now, I will furnish the horses for the machine and will give you 20 cts. a rod for cutting the ditches and making them ready for the tiles." He did not accept the offer.

The truth is, no farmer will ever get rich simply by using machinery. It is not the principal point to aim at. And the same is true of new varieties of seeds and fruit. As a rule, the less we have to do with them the better. Our great object, at the present time, must be to get the land in the best condition to raise large crops and then to find out how to convert them into the best beef, mutton, wool, cheese, butter, and pork, at the least cost.

"But how did your spring wheat turn out?" I got 23 bushels. On one side of this acre of wheat, I had barley that yielded 35 bushels per acre, and on the other side, oats that yielded 75 bushels per acre. Now, I do not say that this is not good spring wheat. I presume it is. And, if I were a spring wheat grower, I would give it a farther trial, on land in better condition. Depend upon it, however, that the one thing which American agriculture wants to day, is not improved varieties of seeds, but improved cultivation of the soil. And it is so with improved breeds of cattle and sheep. Col. Waring proposes to renovate Ogden Farm by putting on it a heavy stock of the best animals. I have no sort of doubt but that he will succeed in his object. He will make large quantities of rich manure, and this in the end will make his land rich enough to support all his stock with little extra food. But in order to do this, he must for some years *purchase food* for his present stock. In his circumstances, I think he has adopted the right course. And there are thousands of farms where the same plan would prove very profitable. But he must get good prices for his stock, butter, etc. And then, again, it should not be forgotton that the first thing he did was to thoroughly underdrain his land. I presume, too, he is taxing all his energies to make it clean. In point of fact, therefore, his practice does not essentially differ from the one I advocate. I urge the necessity of improving the land before you get improved varieties of plants and animals. He puts the animals on at once and buys food for them in order to make manure, and thus bring up the fertility of the land to the self-supporting point. As his land is thoroughly drained, the plan is an excellent one. It is simply buying food to make manure, instead of buying the manure. I knew a nurseryman who drew clover hay to the city and sold it for $10 per ton, and drew back fresh stable manure which cost him $1.00 a ton. Waring knows better than to do this. He feeds his clover hay to Alderney cows, sells the butter for 75 cents a lb., and has manure left worth $10 for every ton of clover hay he feeds out; and I presume he feeds oil-cake besides, the manure from a ton of which is worth $20.

Most farmers cannot adopt this system. We have not capital enough. We must use *time* as a substitute for capital. We must first bring up our land, and then put on improved stock.

How best to do this depends on the soil and location. But in all cases the first thing is to underdrain all land that needs it. The next is to kill the weeds and make the land mellow. These two things must be done no matter what the character of the soil may be. On light, sandy land we can best clean the land by growing hoed crops, such as corn, beans, and roots, that admit the use of the cultivator; on heavy, clay loams it will, at first, generally be best to summer-fallow, or "fall-fallow," or both. Then, never sow a grain crop without seeding it down in the spring with clover. Do anything you like with the clover except to remove it from the farm. Plow it under, or pasture it with sheep, or make it into hay, and return the manure obtained from it to the land. I will not say which is the best plan. It depends on circumstances. With butter at 40 cents a lb., and *good* sheep worth 8 cents per lb., live weight, I think it a pity to plow under clover, because the manure from the sheep eating the clover, is worth as much, within five per cent, as the clover would be if plowed under. And in fact, on wheat land, I would rather have the manure from clover than the clover itself, because the clover gives us too much carbonaceous matter, which produces an excessive growth of straw, and probably retards the ripening of the wheat. Still, this effect would not be produced until the practice of plowing under clover had been continued for some years.

Where a farmer has not sufficient capital to buy manure or to purchase oil-cake, or other food to feed his animals for the purpose of increasing his manure heap in quantity and quality, he must be content with raising comparatively few grain crops. He must aim to get 40 bushels of wheat per acre on ten acres, instead of 20 bushels per acre on 20 acres. And he must aim to get 80 bushels of corn per acre on 5 acres, instead of 40 bushels per acre on 10 acres. In this case he will not have a bushel more to sell than he now has, and will impoverish his land no more. In a recent conversation with Mr. Geddes, the able advocate for plowing under clover, he remarked, "You recommend summer-fallowing; but it will in the end, certainly impoverish the land. I have seen numerous instances where it has had this effect." No doubt about it; and plowing under clover will, theoretically, do the same thing. Practically it does not have this effect, because the land as it becomes impoverished, will gradually cease to grow clover. What I advocate, is the use of fallows to bring up and clean neglected land, especially that of a heavy character. When the land is clean and in good order, I would not summer-fallow. I would grow clover and feed it out to stock. To grow clover and plow it under has the same effect as summer-fallowing. Both processes owe their value mainly to this one effect: They combine in one crop (say wheat) the atmospheric and soil capacities of two seasons of growth, instead of one. If the soil and atmosphere are capable of giving us 15 bushels of wheat every year, fallowing or plowing under a years' growth of clover, should give us 30 bushels per acre every other year. We get no more wheat in the one case than in the other. Where, then, does the profit come in? It costs no more for seed, and little more for harvesting a crop of 30 bushels, than a crop of 15 bushels. And consequently we save the seed and nearly all the labor of one crop. The only advantage which the clover has over the fallow, is, that the roots may go deeper than the wheat, and bring up plant-food from the subsoil which is turned under for the use of the wheat. It may be, too, that the cost of working the land in clover is not as great as in fallowing. On the other hand, fallowing makes the land cleaner and develops more plant-food in the soil.

Now, mark you, I am not advocating fallowing instead of clover. I am only contending that the clover system will impoverish the soil just as much as the fallowing system, provided that the clover is all plowed under, and wheat is raised every other year. And the same is true if we substitute oats, or barley, or corn in the place of wheat.

No one holds clover in greater esteem as a renovating crop than I do. What I contend for is, that we should use it as a renovating plant and for food at the same time. Instead of plowing under clover the first year and sowing the land again to wheat, I would let it lie two years, and either make the crops into hay and draw back the manure, or pasture the field with sheep. Then after two years, I would plow it in the fall and sow it to barley in the spring, and seed down with clover again. Now I pasture for two years more and then plow up and sow to wheat, and seed down again with clover in the spring. In this way we get a crop of grain every three years, and might expect three times as much to the acre as if we sowed a grain crop every year. In other words, we might get as much grain and have the use of the clover for the maintenance of horses, or for the production of mutton, wool, butter and cheese, into the bargain. The amount of plant-food removed from the clover by the animals is of little practical account.

If this system does not make the land rich enough, I would go a step farther. Instead of plowing up the clover the second year, let it lie until the third year, and then plant it to corn or sow it to peas, and let the whole crop be fed out on the farm. If peas are sown, sow wheat in the fall; and if corn, sow it to barley the following spring; and in either case, seed down again with clover. In this way we get for one grain crop sold from the farm, three years' growth of clover, and one years' growth of peas or corn, all of which are returned to the soil. We shall have nearly or quite as much wheat and barley to sell, as if we sowed these crops

more frequently, and we could keep considerable stock besides.

"But will it pay to keep sheep with wool at 40 cents per lb.?" It will pay better to feed the clover to sheep than to plow it under; for the pasture in this case costs you nothing, and now that we have such admirable mowing machines, rakes, and unloading forks, we can put a ton of hay in the barn (if it is a good crop) for less than we can plow under an acre of clover. I have heard farmers recommend plowing under clover for manure, and at the same time undertake to show that we cannot afford to keep stock with hay worth $25 per ton! Can we any better afford to plow it under, seeing that the droppings from the sheep are worth nearly or quite as much as the clover for manure?

I think I could keep good Merino sheep, not bred too much to grease, with profit on my farm. The trouble now, is, that many farmers keep their sheep on a starvation ration. They let the flock take care of itself—pasture them on the highways and fallows in summer, and let them eat at a straw stack in winter. They get one lamb from two ewes, keep their wethers until three years old and then sell them for $1.50 or $2.00. Of course this will not pay. But let a farmer select a flock of strong, healthy, good bodied Merino sheep, and give them good food, and the necessary attention, and they will pay even at present prices of wool and mutton. At any rate, they will pay as well as growing wheat at $1.25 per bushel, and better than cows that only give 90 lbs. of butter a year, or four-year-old steers that do not weigh 1,000 lbs., and sell for 4 cents per lb. Ten Merino wether sheep will eat no more than such a steer, and will bring as much at four years old, and we have two fleeces from each sheep besides. The steer brings in $40 all told. The ten sheep sell for $40, and bring in as much more for wool.

But it will be said that no good farmer will keep such a steer. Neither will any good farmer keep such sheep. His wether sheep at this age, when well fatted, will weigh 140 lbs., and by looking at the market reports, you will see that a poor sheep of 70 lbs. sells for 3 cents per lb., while a fat one of 140 lbs. is worth 9 cts. Ten of the former bring $21; ten of the latter $126!

Nothing is more certain than that the demand for good mutton will continue to increase for many years. We are the greatest beef eaters in the world, but as yet we scarcely know the taste of good mutton. During the past twenty-five years there has been a wonderful improvement in the quality of our beef, but the great bulk of our mutton, so far as my observation extends, is not as good to day, as it was twenty years ago. This will not do. Farmers are now convinced, I think, that they must keep more stock, and they are anxiously considering whether to keep sheep or cows. At present, cows pay better than sheep, but they require more attention. A farmer who has dry land, remote from market, and who has to depend principally on hired help, will probably find sheep more profitable than cows; and this is especially the case on grain growing farms. But there is no profit in keeping either cattle, cows, or sheep, unless they are kept well. Merino sheep will pay if they are kept *steadily improving every day.* They do not require high feeding, but they should at all times have as much food as they can eat. No one will dispute this remark, and yet I question, if there is one Merino flock in a hundred, that is not starved more or less during some periods of every year. Let no such farmer think he will find dairying more profitable than sheep, unless he adopts a more rational and humane system of feeding. Let him not think that he will make more money by keeping Long-wooled mutton sheep. The trouble is not in the breed but in the breeder. Cotswold, Leicester or Southdown sheep are capable of affording as much more profit compared with common Merino sheep, as Shorthorns and Devons are, compared with common cattle. But they must have good care and feed. John Johnston writes me: "I am almost sure that if you would keep 80 or 100 breeding ewes of the Long-wools, you would make a lot of money." This is certainly complimentary, so far; but after all, he is only "*almost* sure." He has still a latent doubt as to how far an agricultural editor will give them the necessary attention. But he should recollect that he himself has written more than almost any other farmer in the United States; and it follows consequently that a man who studies agricultural subjects and writes about them, is not necessarily incapable of attending to his farm and his stock.

A farmer in New England objects to what I said about drawing out manure in winter. He prefers to pile it and let it get thoroughly rotted before applying it to the land. So do I. But labor is so high and so uncertain, that I prefer to draw out manure when we have leisure, whether it is or is not the best time for securing the greatest benefit from its application. On land subject to floods, of course, it would be unwise to spread manure in winter. And on very steep hillsides the rain might wash out much of the goodness of the manure, and carry it off from the land. But, on ordinary, level land, there is less danger from this source than one might imagine who has not looked into the matter. The soil, especially if in grass, will absorb the rain and melting snow, and with it all the soluble matter washed out of the manure. Where land is underdrained, this is certainly the case. And there is no way of applying manure better than in the liquid form. When manure is spread out on grass land in winter, the best portions of it will be washed out and carried into the land distributed through the soil in such a way as to be readily taken up by the roots of the grass. The portion left on the surface will serve as a protection from the cold winds of spring, and the grass will start earlier and grow more vigorously. And it will also act as a mulch in summer.

I said, I preferred to *pile* the manure rather than to draw it out fresh as made during the winter. The reason is, simply because I use a great deal of straw, and when manure is piled, it is reduced more than half in bulk by fermentation, and at the same time its plant-food is rendered more soluble. And when we use so much straw, there is not the slightest danger of losing ammonia by fermentation. The acids produced from the fermenting straw, will hold all the ammonia formed in the heap. This spring, if bone-dust can be obtained at reasonable rates, I propose to pile my sheep manure, which contains a large amount of straw, and mix bone-dust with it. Put a layer of manure, say a foot thick, at the bottom, and then spread bone-dust over it at the rate, say of 50 lbs., to each ton of manure. Then put on another layer of manure, and spread the bone-dust over it, and so on until the heap is finished. If a few loads of muck or soil are put on top, it will be all the better. The bone-dust will greatly accelerate the fermentation of the manure and decompose the straw, and the acids, produced from the decaying straw, will hold the ammonia formed from the organic matter of the bones, and prevent its escape. The bones will be softened and disintegrated, and rendered much more soluble, than if applied directly to the soil. If this work is done in March, and the heap is turned two or three times, the manure will be in capital condition to apply to root crops in May or June. But if not needed for these, it will not injure any crop to which it may be applied. If you want to see cabbage and cauliflowers grow, dig in a liberal allowance of this manure, and sprinkle a teaspoonful of superphosphate in the hole when the plants are set out, and then keep the ground thoroughly cultivated and hoed. Put a little of it in the celery trenches, and mix it with rich surface soil. If your evergreens on the lawn look yellow, fork in a barrowful of it around each one, and if it injures them, let me know. Those forlorn looking currant bushes would be grateful for a few shovelfuls. If you want some good melons, put a wheel-barrowful of this manure, hot from the heap, under each hill; cover it with some rich soil, and sprinkle on it a teaspoonful of superphosphate. Then plants, especially if protected for a week or two with a box covered with glass, will not know that they are in a "farmer's garden;"—they will think they are enjoying the care of some intelligent mechanic or professional man in the village or city, and grow accordingly. If any of the manure is left, spread it on the meadows, or grass land, whenever it is most convenient.

"Why do you speak of a hog as a pig?" writes a critical friend. "You might as well speak of a cow as a calf, or a sheep as a lamb. A pig is simply a young member of the hog family. (See Dictionary.)"—What do the Dictionaries know about pigs? I have no particular fancy for the word hog, and the term is entirely unnecessary. A good farmer never keeps "hogs." He may have breeding sows old enough to be termed hogs, but his fattening stock is sometimes in the pork barrel at an earlier age than the wild hog weans her young.

Sometime since I read a letter in an agricultural paper from a farmer in Tennessee, who had such a fine litter of pigs that he thought their weights ought to be given to the public. They were not quite four years old, and averaged over 250 lbs. each. Those *were* hogs. But as long as my pigs will weigh more than that at eight or nine months, I do not propose to offer them the indignity of speaking of them as hogs. I do not know at what particular period in his history a pig ceases to be a pig and becomes a hog. A sheep is a lamb until it is a year old, even though it weighs 150 lbs. Mr. Sheldon's Shorthorn that weighed 1,200 lbs. before it was a year old, would be called a calf. It is so with pigs. Our modern breeds are larger, or at least heavier, at six months, than many of the old-fashioned "hogs" were, at two years. Since these improvements in the early maturity and fattening qualities of the breeds of swine have taken place, all the English agricultural writers have dropped the term hog. In England, it is "Youatt on the Pig," not "Youatt on the Hog," as the American editor styles the book. Richardson wrote of the pig, not of the hog; and so does Darwin in his recent scientific work on "Animals and Plants under Domestication." I do not think he once uses the word hog, as applied to the domestic pig, in the whole book; and he certainly will be regarded as good authority.

Dr. Johnson, in his Dictionary, gives the following definition: "Swine. A hog; a pig. A creature remarkable for stupidity and nastiness,"

This may have been true in his time. But a modern well-bred pig is one of the cleanest, if not one of the gentlest and most intelligent of our domestic animals. Let his hoggish name cease with his hoggish nature.

I am glad to see that a "Swine Breeder's Association" has been formed in Illinois. It is certainly needed. Our Agricultural Societies pay comparatively little attention to swine. They often appoint judges that do not know a Berkshire from an Essex, and are just as likely to give a prize to a grade as to a thorough-bred.

Cutting up the Fore Quarter of Beef.

There are a great number of beeves killed for the use of those who live in the country, and this is usually done either by country butchers, or by the farmers themselves. The object in cutting up seems to be to get the meat into pieces that can be conveniently salted, boiled, or cut up for frying. Now there are pieces peculiarly adapted to roasting or baking, others fitted for corning, others out of which stakes may be cut; and whether the meat is to be sold in pieces to suit customers, or cut up for family use, it is important that there should be (so to speak) an equitable apportionment of bone to meat, so that we shall not have pieces of bone with little or no meat, and pieces of meat without their share of bone, which, indeed, is often taken out.

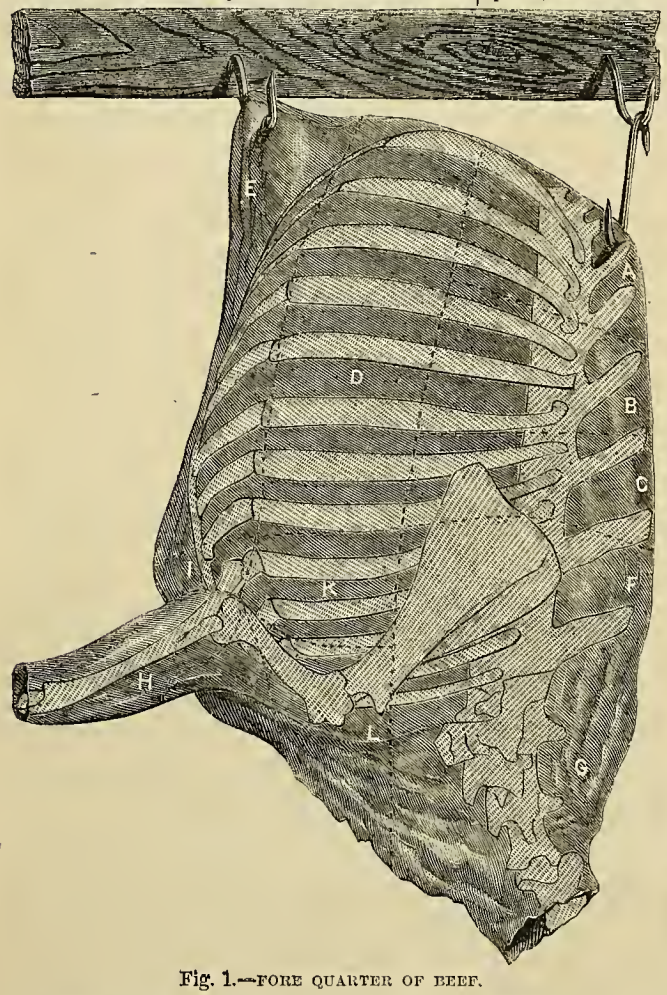

Fig. 1.—FORE QUARTER OF BEEF.

After the beef is slaughtered and dressed, the carcass is cut in two, an ax or cleaver being chiefly used; and it is so cut that the spines of the backbone are left alternately on either side. The sides are handled and transported, whole, or cut in halves, according to the weight and size of the animal. When divided, the cut is made just back of the last rib, as in figure 1.

The fore quarter should be cut about as follows: First, a cut is made from the outside, crossing all the ribs nearly in the middle, and severing the whole quarter in two, apparently, nearly equal parts, as seen in figure 1. This cut may be made to cross the 7th or 8th rib, and then the quarter may be cut across the other way; or, after making the first cut through, each part may be divided at the 7th or 8th rib. The rib roasting pieces are cut from the piece containing the backbone, following the ribs. The choicest piece contains the second and third, or second, third, and fourth ribs, counting from the rear. The dotted lines in the engraving indicate that the first three ribs are cut for one large roasting piece (*A*), the next three for another (*B*), and the seventh and eighth for the next (*C*). The broad, flat piece (*D*), which contains the ends of the ribs is called the plate piece, and with the one cut from it containing the cartilaginous and bony connections between the ribs and the breast-bone, and called the navel piece, is used for corning. The plate piece of a very fat steer is shown in fig. 3, and fig. 4 represents the navel piece from the same animal. Used fresh, these pieces are excellent for stewing, and pretty good for boiling for soup.

After removing the first, second, and third-cut rib roasting pieces from the upper half of the quarter, the rest is cut at right angles to the backbone, into as many pieces as is desirable. Those cuts, containing ribs, are called chuck-rib pieces (*F*, fig. 1), in the vicinity of New York, and we believe New York nomenclature is becoming quite generally accepted. The neck cuts (*G*, fig. 1), are called first, second, and third neck pieces. These are for soup, stewing, or corning, and are also used by the Bologna sausage makers in our large cities. Figure 2 shows the cut made in dividing the rib roasting pieces from the chuck-rib and neck pieces, seen together in figure 1. The leg (*H*, fig. 1), or that part of it which is anatomically the *forearm*, is called the shin, or shin of beef, fig. 5, and is cut off following the dotted line above, but avoiding the brisket, (*I*, fig. 1,) which lies beneath it. The shin is an excellent soup piece, one of the very best, especially for soup stock, and the brisket is generally corned. The piece marked *K*, in figure 1, is the cross-rib, an excellent common piece for almost any purpose. In front of the cross-rib lies the shoulder clod and sticking piece, not separated. This is rather a large piece, and is cut up for corning, soup, or stewing pieces. The thick piece containing the shoulder joint is a favorite soup piece.

Cut in the way here indicated, every piece contains more or less bone, except the sticking piece. The proportion may easily be judged of by the outline of the frame in figure 1. When chuck-rib roasting pieces are cut in the market, the shoulder-blade is usually cut out, and a slice of nice fat laid and skewered in.

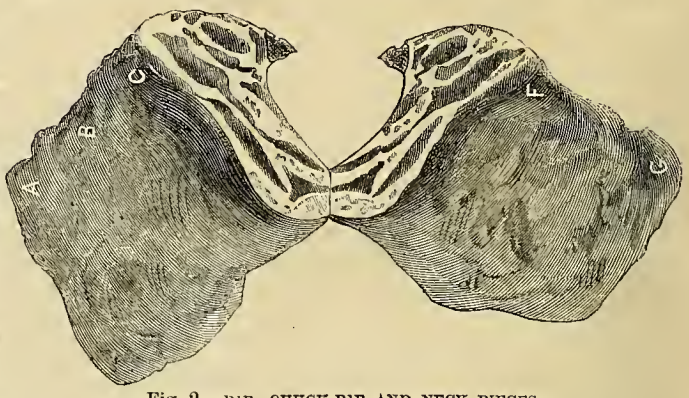

Fig. 2.—RIB, CHUCK-RIB AND NECK PIECES.

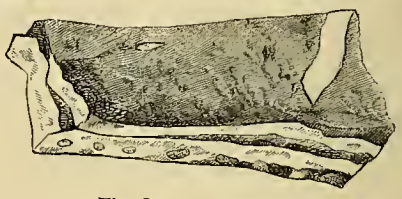

Fig. 3.—PLATE PIECE.

With this description we think no one should have any difficulty in cutting up a fore quarter of beef very neatly. The tools needed are a good knife and steel, a butcher's saw, or a good, fine-toothed cross-cut wood-saw, and a cleaver, or light ax. It should be borne in mind, that following this general system, the pieces may be larger or smaller according to the size of the animal, and the use they are wanted for.

Fig. 4.—NAVEL PIECE.

Fig. 5.—SHIN OF BEEF.

Warm House Walls.

It makes us almost shiver to ride by the flimsy shells erected for dwelling houses nowadays, in many, if not all of the rapidly growing suburbs of New York, and the adjacent cities. The same faulty structure is to be found more or less all over the country. We are building our wooden dwellings with too light foundations, with too cheap walls, and with too thin floors. Thus, while a house is a shelter from the storm, and a sort of wind-break, the cold penetrates, the rain drives in and wets the walls, and the plastering cracks, water freezes on cold nights, the consumption of coal is great, and discomfort and colds in the head prevail. The walls referred to are simply weather-boarded and lath-and-plastered upon studs set 16 inches apart. There are several ways of making them very comfortable. 1st.—They may be filled in with brick laid flat in a cheap poor mortar, and this when 4-inch studs are used, fills the entire

space between the clapboards and the plastering. 2d.—Nearly as efficient a filling is made by laying the bricks upon their edges. This is a good deal cheaper, but they must be more

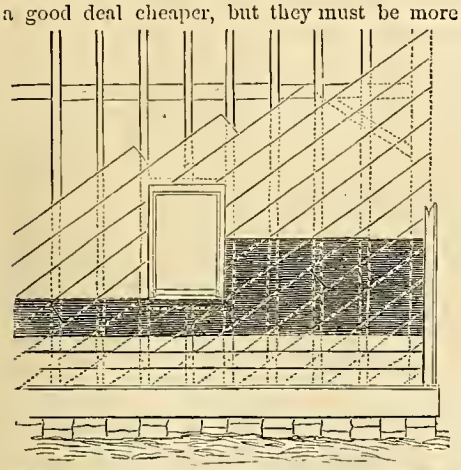

Fig. 1.—DIAGONAL BOARDING AND SHEATHING.

carefully laid, and good mortar used. 3d.—The practice of back-plastering has been for some time in vogue. This consists in tacking laths in the middle between the studs and laying a rough but tight plaster coat upon them. This is cheaper than a brick filling, and more rapidly applied. It has not the same weight, which is useful in settling the house firmly upon its foundation, and in stiffening it against high winds. Still the house is made a good deal stiffer by back-plastering. 4th.—A better plan than either of these is what is called "Diagonal boarding and sheathing." This is represented in fig. 1, and consists of first nailing cheap hemlock boards diagonally upon the studs, and covering them with sheathing-felt or tarred-paper nailed on horizontally, each course lapping an inch upon the one beneath. The boards are not nailed on diagonally to give additional strength and stiffness to the frame from their bracing position, for the frame would be just as stiff if they were nailed horizontally. If in the latter position, however, cracks would often interfere with nailing on the siding. It is of some consequence to have good felt or paper, and the best has a less quantity of tar than roofing-felt. We notice the growing use of felt-sheathing without the diagonal boarding, it being nailed directly on the studs. This is, of course, better than nothing, but not nearly so good as boarding and sheathing. In putting on the boards it is most convenient to give them a slant of 45 degrees, and all on one side have nearly the same slant. The idea of their being useful as bracing the building being a deceptive one, carpenters sometimes put them on to slant upward towards the corners on all sides, which is useless.

There is a style of cheap wall sometimes built which is very comfortable if not handsome.

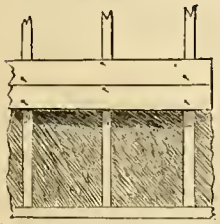

Fig. 2. CONCRETE FILLING.

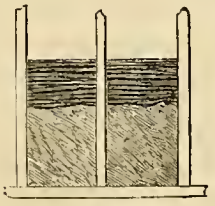

Fig. 3. WATTLED WALL.

The studs are placed three or four feet apart, clapboards nailed on as usual, and the spaces between them filled with coarse concrete, made with a portion of hydraulic cement, boards being nailed on the inside of the studs, as shown in figure 2. When the concrete is stiff enough to stand, the boards are removed, and the surface scratched to receive a coat of plastering. There is an old-fashioned kind of wall which we have known as "Wattled wall," which is made by filling in, between studs set wide apart, with split sticks, cut so as to wedge firmly between the studs. Upon these, coarse mortar is spread, and the outside is finished with a coat of cement floated on smoothly, covering the studs, while inside it is simply plastered. (See fig. 3.)

These two plans are particularly applicable to outbuildings, such as smoke-houses, fowl-houses, hog-houses, and the like, but very warm dwellings might be constructed cheaply on the same principle. In the structure, such buildings are somewhat similar to those in which a wooden frame is filled in with stone or concrete of some kind. These are sometimes built in imitation of European cottages, and if the framing is arranged with some care, may be very ornamental. The style is shown in figure 4.

When the inner plastering is put directly upon stone or brick, or thin concrete walls, moisture is almost sure either to strike through or to deposit upon the inside, hence it is usual to "fur off" for plastering. Any means by which the wall may be made hollow will obviate this difficulty. In laying concrete, half-inch boards may be set perpendicularly, three or four inches

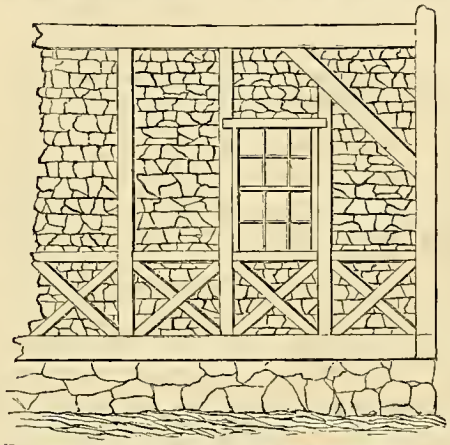

Fig. 4.—EXPOSED FRAME STONE WALL.

apart in the walls, and drawn up as the wall rises. This will entirely obviate any difficulty from moisture on the inside.

Maple Sugar Making.—2d Article.

BY W. I. CHAMBERLAIN, HUDSON, O.

The article in February concluded with the tapping of the trees. If the day has been a good one, many of the buckets at the trees first tapped will be full, and it will be well to commence

GATHERING SAP.—Take the stone-boat sled (fig. 5, Feb.), put on three barrels or casks, a tunnel made to fit the barrel and not rock,—and a tin pail holding sixteen quarts. One pail is better than two, unless the trees are scattered far from where the sled can go. There should be a *strainer* in the tunnel. This should be of the shape shown in figure 2, and made of thin, coarse, white muslin, stitched around a wire hoop at top and bottom. The top wire should fit tightly over the top of the tunnel, and be pressed down over the outside of it about an inch, so as to hold the strainer in place. The bottom wire should be small enough to keep the strainer from touching the sides of the tunnel, else the sap cannot run through rapidly. The strainer should be so short that the bottom of it will not touch the bottom of the tunnel, for this too would obstruct the flow of sap. The strainer is to keep out from the barrels dirt or flies that may have got into the sap, and also to prevent the loose flaky ice often found in sap from clogging the tunnel. The ice may be thrown away, as it is of little value.

Fig. 1.—HOW TO EMPTY SAP.

Select a good road through the grove so as to bring the sled as near each tree as practicable. There is but one right way to empty the sap from the bucket into the pail. If you are not used to the work, probably you will set the pail on the ground, take off the bucket cover and throw it down, take the bucket from the spile with both hands and empty it, hang the bucket, stoop for the cover, and finally stoop again for the pail. If the pail does not stand on level ground, the sap will run over, and if the cover is wet, dirt will stick to it and fall into the pail. The right way is this. Stand facing the tree, with the bucket in line between it and yourself. Hold the pail in your left hand, take the cover with your right hand, and place it up under the left arm above the elbow. Now hold the pail close to the left of the bucket, grasp the rim of it firmly with your right hand, and turn the bucket gently on the spile, as on an axle, until the sap is all out. Then let the bucket back to its place, and put on the cover. (See fig. 1.) The bucket is not removed from the spile, no sap is wasted, no dirt sticks to the cover, your backbone is not bent, and one hand empties the sap far more easily and quickly than both. In gathering, if you find a large bucket only half full, and near to it a small one overflowing, change them. Much sap can be saved by a little care in changing the buckets where necessary.

Fig. 2.

When your barrels are full, and you go to empty them, be careful to drive close to the ends of the skids. These are straight poles, or 3 × 4 scantlings, fastened at the upper end to the store-trough, and at the lower end to a timber at right angles with them, and high enough to bring them just on a level with the top of the sled-rave, as shown last month in the engraving on page 59. The skids should be just long enough to let the barrels roll once and a half over and bring the bung-holes down. Or if the top of the store-trough or vat is low enough, the skids may be so short as merely to let the barrels roll half over. At any rate the skids should not be steep, not more than fifteen degrees, or the barrels will roll too hard for one man to unload easily.

Fig. 3.—DIPPER.

If there is any mud on the barrels remove it

before they are stirred, for if it gets into the sap in emptying, it cannot be strained out. Indeed, if the road is very muddy, it is well to have a tight sled bottom below the barrel rack.

About two feet from the lower end of the store-trough, a strainer-cloth should be tacked tightly to its sides and bottom by strips of lath, and should be stretched across the trough from top to bottom. The lower end of the vat is only half an inch lower than the upper end. This gives the sap a gentle motion through the strainer, permits the fine, heavy dirt to settle, strains out everything at all coarse, and drains the trough after you have stopped putting in sap. The lower store-trough (in the sugar-house) is arranged in the same way, to secure the greatest possible cleanliness.

As soon as the first sled-load of sap is in the upper vat, and has settled for a few minutes, the faucets are opened and it is run down into the boiling-pans, and as soon as it covers the bottom of these, one man should commence boiling. The most careful and capable hand should take this work,—usually the owner of the sugar-works. The wood should be well crossed in the "arch," and not permitted to pack down and keep the air and flame from circulating freely. It may pack down so that no heat shall reach the front pan. One should not be satisfied unless the sap is foaming and tumbling all over the pans. Scum (like suds), will rise and float to the edges and corners, and should be skimmed away often. It may be saved, cooled, skimmed, and settled, and put into a barrel with half its bulk of *rain-water*, and a little vinegar or "mother." In a year it will be quite good vinegar.

If the sap is inclined to boil over, a bit of lard as large as a small pea, will keep it down for two hours, and not injure the flavor of the syrup. Do not split wood in the shed near the arch without closing the door, or the dirt and chips will fly into the boiling sap.

If you have not the self-feeders (fig. 4, Feb. No.) you must use great care not to let the sap boil too low. You go out, perhaps, to help unload, or to change buckets according to the running capacity of the trees, and come back to find the sap boiled to syrup and just ready to burn. Do not, however, keep the pans too full. The less sap there is in a pan, other things being equal, the faster does it evaporate. Not merely a larger *fraction* of the quantity in the pan, but a greater absolute amount,—more gallons.

It is best to "syrup off," often. A barrel of sap makes a gallon of syrup, thick enough to strain, cool, and settle before clarifying, which, when cool, will weigh 10 lbs. When you have enough boiled in for six or eight gallons of syrup, and it is boiled to about an inch deep in each pan, slacken the fire a little, and dip all you can safely, into the front pan, and supply its place with as much cold sap. Boil that in the front pan until it will drop from the edge of the dipper in drops three-quarters of an inch broad. Then, if you have a car (fig. 5, Feb. No.), draw the pan up two inches and roll it to the front, away from the fire, lower one end two inches and dip or pour off the syrup at your leisure, and run it into a twenty-gallon cask through the strainer (fig. 2). If you have no car, slacken the fire a little, and dip off the syrup as low as practicable with a flat-edged two-quart dipper (fig. 3). Have a pail of cold sap at hand, and when you have dipped as low as it is safe to do, turn in the cold sap. Or if you wish all the syrup out, dip out all but a pailful, and then two men can easily lift off the pan, pour out the syrup at one corner, turn in a pail of sap and put the pan in its place again. When the cask is full it should be removed to the dwelling house, put on a bench and left for twelve hours to settle.

It is best to "syrup off" as often as once in ten gallons. The syrup is better, there is less risk of burning, and it boils faster if the pans are only partly full of syrup.

For clarifying, a small sheet-iron pan, similar to those at the sugar-house, is used. It is about 2 ft. long, $1^1|_2$ ft. wide, and 9 in. deep. This is set on top of the cooking stove, and the syrup filled in to the depth of two inches. If proper care has been taken in gathering and boiling, the syrup, after settling in the cask, will draw off as clear, and almost as light colored as strained honey. It is common, however, to clarify it with milk or beaten eggs, or both together. Eggs make lighter-colored syrup, but injure the maple flavor; hence it is best to use milk. A pint of it will clarify ten gallons of syrup. The proper quantity of milk should be stirred into the syrup when it is first put over the stove. As soon as it begins to boil, the milk, with the impurities, will rise to the surface in a thick, dark scum. This should be skimmed off as often as it rises. Boil and skim until a gallon of the hot syrup will weigh $10^1|_4$ lbs. The scales and gallon measure should be at hand, and every mess of syrup should be brought to exactly this weight. In cooling, it shrinks so much that a gallon when cool, weighs 11 lbs., and this is standard weight for maple syrup. If it is thicker it will turn to sugar badly.

If you wish to make sugar, the syrup should boil until it "hairs," that is, drops from the edge of a dipper or spoon, and draws out into hairs three or four inches long. For cakes it should be taken off and stirred until it begins to grain and turn light colored, when it may be poured into tins of any required size and shape. For grained sugar, the stirring must be continued until the sugar is nearly dry, when it may be put in a cask with a perforated bottom to finish drying. It ought to be as dry and white as good "C" coffee sugar. In general, however, it does not pay to make sugar, except a few pounds of small cakes at the first of the season for eating. A limited quantity early in the season will bring from 25 to 35 cts. per lb. Later it will not bring more than 18 cts., and then the syrup, if nice, will buy its weight of "C" coffee sugar, which is better for ordinary cooking purposes. Nice maple syrup is far the best syrup made for buckwheat cakes; and at tea, with hot biscuit, it is better than honey. One does not tire of it so soon as of honey. But it must be of the *best quality*. There is as much difference between syrup made as I have described, and that made from sap and water caught in open wooden buckets or troughs, and boiled in kettles hung between two logs by "sweeps" and chains in the old fashion, as there is between Cauliflower and Cabbage, or Delaware and fox grapes, and people begin to appreciate this difference. Prime maple syrup, made as I have described, now brings in Northern Ohio, from $1.50 to $2 per gallon, according to the time of making. But it must be strictly first quality, and in order to have it thus, three things must be observed:

First.—*The sap must be kept clean*....Second.—*It must be kept cool and sweet until it is boiled*, and in order to have this,....Third.—It must be *gathered as soon as possible* after it runs, and boiled as *rapidly as possible*.

One can guard against sour sap in several ways. When cakes of ice form in the buckets they should not be thrown out (though there is little sweetness in them), for they keep the sap from souring as long as they remain unmelted. It even pays to gather a quantity of this ice to put into the vat if the day is warm. The most of the sap should be kept covered tightly in the *outer vat*. The one in the sugar-house is warmed by heat from the arch, and by steam from the boiling, and the sap will tend to sour. Again, after each "run," the vats, strainers and barrels should be scalded. We usually have two or three days, sometimes a week, of freezing nights and warm days, when the sap runs well. Then it rains or snows or freezes solid for as long a time. The consecutive days of sap weather before the storms and freezing, are termed a *run*. When there are indications that the run is over, barrels, vats, strainers, pails and boilers should be left sweet and clean. The vats and strainers should always be scalded. If the spiles begin to sour they should be brought in and thoroughly boiled out in water in one of the pans. The buckets can be most conveniently scalded by taking a barrel of boiling water on the sled, going through the woods, bringing twenty buckets to the sled, scalding and returning them to the trees bottom side upwards. Two men in three-quarters of a day will scald 500 buckets and spiles, and it pays over and over again for the work. Some seasons the buckets and spiles should be scalded three times, twice during the season, and once at its close. Usually, by the time the buckets need scalding the holes need reaming out, or the trees retapping. The reaming is done with a curved-lipped bit $^9|_{16}$-inch in diameter. If the trees are small and tapped every year it is not wise to bore *a second hole*. Reaming the old one answers the purpose.

Fig. 4.—BUCKET INVERTED.

If the buckets are not sour, it is well to invert them at the last gathering of the run. The bucket is not removed from the spile, but inverted on it, and left inclining from the tree at an angle of about 25 degrees (as in fig. 4). This drains it, and the frost and wind make it sweet and clean. The cover should be laid on a clean root, if placed upon the ground the dirt may freeze to it.

The sap should be gathered as soon as possible after it runs, and boiled soon and rapidly, even if it requires night boiling. Night-boiling is not so bad as it might seem. A bunk is built in one corner of the sugar-house, three feet high, with straw-bed, pillows and buffalo-robe or blankets; and two men divide the night, one boiling while the other sleeps. You will sleep soundly after gathering thirty barrels of sap.

THE PROFITS.—The expense of fitting up a "camp" of 500 trees with buckets, spiles, covers, vats, etc., including a decently good sugar-house and shed, need not much exceed $500, or $1 to the tree. In a favorable year, good trees will yield fifty cents worth of syrup, which is good interest. The buckets and fixtures will last thirty years or more, if cared for. The fuel of the kind I have described answers the purpose well, if housed, and costs little. The work can be performed by the usual force, and comes at a time when not much other profitable work can be done, at least on a dairy farm.

If a man has 500 good maple trees, growing close together, say on six or eight acres, with the other trees mostly cut out, this piece of ground will probably net him more than any other of equal size on his farm. The most impor-

tant directions may be briefly stated again, thus: *First.*—Use tin buckets, hang them on the trees and cover them....*Second.*—Use maple spiles, turned, bored, and notched in three places....*Third.*—Use great care to keep dirt out, and strain, settle, and skim thoroughly....*Fourth.*—Gather often, and keep the sap cool and sweet....*Fifth.*—Scald vats, strainers, buckets and spiles when they show the least signs of souring....*Sixth.*—Use refuse wood, and house it during the dry fall weather....*Seventh.*—Scald, wash and wipe all the vessels, and put up neatly all the fixtures at the close of the season, lock the sugar-house door, and everything will be ready at a minute's notice.

Fish and Muck Compost.

BY AN OLD SEED GROWER.

To prepare fish and muck compost, commence with three shovels of swamp muck, and spread it on the ground in a circle, if for a small heap of a few barrels of fish pomace, or in a long heap for a large quantity; then beat the fish fine and scatter one shovelful over the muck, and so continue alternately until all is mixed, leaving the heap cone-shaped. In about a week the heap will begin to heat, and should be turned and mixed, commencing at one side and making all fine with the back of the shovel. In a week or ten days more, it should be turned again. In three weeks it will be fine and fit for use. It may be kept until wanted to be used, but will require further turning if it continues to heat. The muck should be damp when mixed, or it will not heat sufficiently. Peruvian guano and muck, or earth, should be mixed in the proportion of six to one of guano. It does not heat, but requires the same turning and mixing as fish and muck. A handful of either in the hill is about the quantity generally used, but of the fish compost, more is required than of the guano—as much as can be held in the hand with the palm uppermost and the fingers spread. If thrown into the hole in a heap, it should be spread before being covered, to avoid the danger of destroying the seed, which never should be planted directly upon it.

Cultivation of the Castor Bean.

Numerous correspondents in the Southern States are making inquiries concerning the cultivation of the Castor Bean, and though there are several articles upon the subject in the back volumes, we suppose that to many these are not readily accessible, and we here give a brief synopsis of the matter. The plant, *Ricinus communis*, is a native of India, is a perennial 30 or 40 feet high in subtropical countries, but in cooler latitudes it is cultivated as an annual. It will grow and even perfect a portion of its seed in the latitude of New York and farther north, but it can only be cultivated with profit in the warmer States. In Illinois it is stated that the yield for the past two years has averaged only 9 bushels to the acre, (though it has been more than this in former years), while in Texas it is from 50 to 60 bushels. Land that is capable of producing a good crop of corn, is suited to the cultivation of the Castor Bean; it is thoroughly plowed and harrowed, and marked out with furrows at 6 feet apart. At every tenth row a space is left wide enough to allow of the passage of a cart to collect the crop. To secure a good stand, four seeds are planted at the intersections of the furrows; some scald the seeds, allowing them to remain in the water for twelve hours before planting, and then drop two of the seeds with two that have not been so treated. The scalded ones germinate soonest, and should they be cut down by frost, the others will come up later and thus save replanting. A bushel of seed is sufficient for 18 or 20 acres. The planting should not be done until frosts are probably over. When the plants are well established, all but the strongest one in each hill is removed. The soil is to be kept mellow and clear of weeds by use of the shovel, plow, or other implement, and the crusted surface is broken up after heavy rains. The clusters or spikes of beans ripen unevenly, and they have to be collected every few days. The pods, as they ripen, burst, and throw the seeds out with considerable force, and to avoid waste, the spikes must be gathered as soon as they turn a brown color. They are cut, thrown into the cart, and carried to the curing-house or popping yard. An out-building in which to cure the beans, may be fitted up with shelves and a stove, or a special building may be put up for the purpose. A plan for one was given in May, 1867. Where artificial heat is used, it should not exceed 120°. An open shed with a floor and boards around the sides to prevent the beans from escaping, is also used, and the pods are dried without artificial heat. Whatever place is used as a popping yard, it is necessary to prevent the beans from coming in contact with the damp earth, as well as to keep rains from wetting the spikes. After the beans have all popped out, they are cleaned by being run through a fanning-mill. The beans weigh 46 lbs. to the bushel. As the pressing of the oil is in the hands of a few persons who usually contract directly with the growers for the crop, the price of the beans is not quoted in the Market Reports.

HAULING OUT MANURE.—"W. G. C.," says: Commence dropping the heaps two and a half paces from one side of the land to be manured, and drop the heaps five paces apart, the whole length. Drop the next row five paces from the first, commencing half way between the first two heaps, breaking joints, as it is called, and so continue, until the whole is finished. This takes 160 heaps to the acre. If it is desired to manure pretty heavily, drop five heaps from a one-horse cart, which will take 32 loads to the acre. Six heaps from the cart take 27 loads. Seven heaps 23 loads. Eight heaps 20 loads. An ox-cart or a two-horse wagon will hold one or two heaps more. The quantity required on an acre must always depend upon the quality of the manure, the condition of the land, and the kind of crop to be raised.

SPREADING MANURE.—In spreading manure, care should be taken to scatter it evenly over the land, breaking to pieces all large and hard lumps. This should always be done immediately, or not more than half a day, before plowing, especially if the weather is dry and very windy. The manure should be plowed under, before it dries very much, or loss will accrue.

PLOWING AND HARROWING.—Never plow if it can be avoided, or go on to the ground for any purpose, when it is wet and sticky. Keep the furrows *straight*, and, if possible, reverse them at every plowing, so as to keep the land level. To fill in furrows, back-furrow pretty widely once around, and haul once around very wide; this will generally be sufficient. Harrow soon after plowing and before the lumps, if any, get dried hard; twice over with the teeth down and once with the back of the harrow, will prepare the land for ordinary crops.

Economical Fences.

Fencing, under our present systems of Agriculture, must be endured, and fences must be repaired, made, and well made. In the older parts of the country, especially such as were originally well wooded, fences made of split timber predominate. Where small wood, like red cedar, abounds, the "gun fence" is not uncommon, and may be made to answer a very good purpose. The simple zigzag rail-fence is economical only where timber is most abundant; but, as it is the only easily made wooden fence that will stand upon a bare rock, it is necessary to use it in some places. The favorite post-and-rail-fence is fast going out of fashion, where labor in winter, and timber have a ready market, as they have almost everywhere within 10 miles of a railroad. A bungling, unskillful hand will waste timber wofully in splitting for posts and rails. Holing is slow work for the best farm hands we can hire now-a-days, and whoever trusts the job of sharpening rails to any ordinary hand, will be sure to rue it if he has the fence to set. The waste of timber is most obvious in rail-splitting as compared with sawing. To illustrate this, we give the drawing of one end of an oak log measuring 2 feet in diameter. One half of this is marked to be split into 4 triangular rails about 5 inches deep and 4 wide, and 12 flat rails 7 inches deep and 3 wide, making 24 flat and 8 heart rails out of the stick.

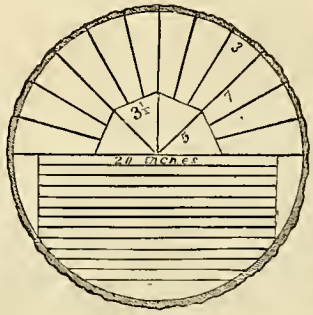

Fig. 1.—TWO-FOOT LOG.

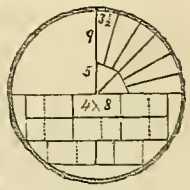

Fig. 2.—28-INCH LOG.

The other half is marked to show how, after taking off the slabs, the whole stick would cut up into not less than 14 20-inch boards, and at least 10 others. These would rip into 70 or more 4-inch, ten 5-inch, and ten 6-inch strips.

The same log, if 13 feet long, split, would afford *rail* material for 125 ft., or about 7½ rods of 4-rail post-and-rail-fence; or, sawed, it would make strips for 130 feet, or 2 feet less than 8 rods of fence made with one 6-inch, one 5-inch, and three 4-inch strips capped and battened, and leaving twenty to twenty-five 4-inch strips over. We have no doubt three-quarter-inch oak strips, well nailed and battened, will last longer than split rails of the same wood or of chestnut.

Posts are another matter; the greater economy of sawing or splitting depends entirely upon the size of the logs. Chestnut sticks, 6 to 10 inches in diameter, will make two good posts each. An 8-inch, half-round post is hardly large enough to hole; but a 10-inch, half-round one may be holed, and makes as good a post as can be desired, for post-and-rail-fence. A 10-inch stick will make four posts for a strip fence, and when looks are not set much by, are as good as if sawed. For a post-and-rail-fence, split posts are almost a necessity; but there is no economy in splitting posts out of large logs.

Figure 2 shows a 28-inch log, marked for splitting into 24 rather thin posts, or for sawing into sixteen 4 × 8 pieces, which will each make 2 posts 5 × 4 at one end and 3 × 4 the other—32 in all.

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THE THRASHING MACHINE OF NEW MEXICO.—FROM A SKETCH BY H. W. ELLIOTT.—*Drawn and Engraved for the American Agriculturist.*

The Thrashing Machine of New Mexico.

Persons accustomed to improved plows, mowing and thrashing machines, and other modern agricultural implements, read of the primitive agriculture of oriental countries, with a feeling of pity for the people who are so far behind the age. But few are aware that we have within our own territory thousands of tillers of the soil whose agricultural implements and operations are as rude as those of the inhabitants of Palestine, where no improvement has been made for centuries. We need not go out of our own dominions to see fields plowed with a crooked stick, wagons built without a particle of iron in their whole structure, grain thrashed by the tread of animals, and ground by rubbing it by hand between two stones. Mr. H. W. Elliott, of Washington, D. C., sends us a sketch made of a thrashing scene in New Mexico, with the following description....."In proceding to thrash, a ring is made, and the earth within smoothed and hardened; then a pile of shock wheat is put into the centre, and from this supply the surface of the ring is covered from four to six inches in depth with the wheat straw. Then the whole household and as many friends and relations as they can call in to help, take places at regular intervals outside of the ring, into which twenty, thirty, or forty sheep are driven, according to its size. The sheep are kept on a constant run by the shouts and exertions of the drivers, who relieve one another at the task of keeping the "machine" in motion.

A floor of wheat is tramped out in about ten or twelve hours of this exercise, then the process of winnowing and cleaning the grain from chaff, sand and dirt, follows, and is carried on in fully as rude a fashion as is the thrashing."

Asphalt Walks.

The "Notes from the Pines" have been crowded out both last month and this. To answer several who have inquired about making walks, we give the following from the writer's last contribution: Some of the neighbors have had asphalt walks laid by those who make it a business, and have, or profess to have, a patent on their composition. Doctor K. has been putting down asphalt walks himself, and I have kept an eye on the experiment. I always thought meanly of the man, who, to the question, "What wine do you prefer?"—replied, "That which other people pay for," but I now think better of him, when I find myself so fond of the experiments which other people pay for. It is very good of the Doctor to try this experiment with the walks and tell how he did it and I felt half guilty the other day when I went, ostensibly to make a friendly call, but really to find out about his *ways* for my own benefit, and for that of those who read the *Agriculturist*. Next to finding out a new or good "wrinkle," the Doctor derives the greatest pleasure from telling some one else how to do it. This is the way he makes his walks: The earth is excavated to the required depth, an edging of bricks placed on end is put down (some use plank), and the earth is rammed hard. Three parts of coal (or gas) tar and one of common pitch, are melted together and boiled for half an hour. The composition is then mixed with dry sand in the same manner as a bed of mortar is mixed, and the material, which is of about the consistency of mortar, is spread upon the path to the depth of about three inches. Boards are laid upon the surface and pounded to make it level; a layer of sand is then strewn on, and the surface rolled. The mixture in a few days, becomes as hard as stone, and thus far the Doctor's paths are as sound as need be, and as good as the patented ones. They are easily kept clean, pleasant to use, and no weeds can grow in them.

The California Pitcher Plant.—(*Darlingtonia Californica.*)

Among the many new plants which have been found by the explorers of the Pacific coast, none is more interesting than the Darlingtonia. It is strikingly curious in its appearance, and in the structure of its leaves and flowers; but beyond all this, a peculiar interest attaches to the plant, as commemorating one whom no botanist mentions without coupling with his name some endearing expression—the late Dr. William Darlington, of West Chester, Pa. Allowing the engraving to save us any extended description of the plant, we will briefly give the history of its discovery, which is interesting, as it shows how long plants may be known to science, before they make their way into collections of living specimens. In 1842, Mr. J. D. Brackenridge, one of the botanists of the U. S. Exploring Expedition under Capt. Wilkes, found, near Shasta Peak, the leaves and remains of a seed-pod of the plant, which were sent home in the collections of the expedition. From these fragments but little could be determined. In 1850, Doct. G. W. Hulse, of New Orleans, in passing over the same locality, came across the plant in flower, and sent dried specimens to Doct. Torrey, who determined it to be a new genus, which he dedicated to Doct. Darlington, and of which he published an account in the Smithsonian Contribution to Knowledge in 1853, accompanied by a plate showing its botanical characters. Every botanist holds it an honor to have a genus bear his name, and Dr. Darlington was delighted, that so rare and curious a plant should be called after him. The West Chester Bank was remarkable for having at one time a botanist in both its President and Cashier. The interior of the banking room was neatly frescoed, and over the door of the President's room was a painting of the *Darlingtonia*, and over that of Mr. Townsend, the Cashier, was one of a *Townsendia*. The Doctor had already had two other plants dedicated to him, which upon further investigation proved not to be good genera, and he was naturally solicitous about the permanence of the present one. We well recollect with what earnestness the old gentleman, then nearly 75, asked, "*Do* you think it will stand?" Some six years ago, Prof. Wm. H. Brewer, then acting as botanist to the California Geological Survey, found the Darlingtonia and sent home an abundance of seeds, which were distributed to various parties. They germinated, in some cases, but the young plants proved to be very shy, and none ever attained any considerable size.

In the spring of 1869, some living plants were sent to Doct. Torrey, which were placed in the hands of several florists, neither of whom succeeded in making them grow. During the past summer, its successful cultivation was announced in England, and the present winter, plants were received from the same person who sent in the spring. Having come by the Pacific Railroad, they arrived in fine condition, and through the kindness of Doct. Torrey, we are in possession of the plant, which enables us to give the engraving, as far as the foliage is concerned, the flowers being taken from the Smithsonian plate. Its resemblance to our common Pitcher plant (*Sarracenia*) will be seen at once, and it is still more like one which grows in the Southern States. The top of each pitcher, which, when full grown, is about 30 inches long, is arched over, with the orifice below; the curious fish-tail-like appendage, which is the leaf proper, gives it a quaint look. Each of the pitchers is twisted about half a turn upon itself. The veining is very distinct; near the top, especially in the older leaves, the pitcher is purplish, with several nearly white dots. The flowers, but one of which is borne upon a stem, are about an inch and a half in diameter, and pale purple.

CALIFORNIA PITCHER PLANT—(*Darlingtonia Californica.*)

Fruit for the North-west.—1st Article.

BY OUR SPECIAL IOWA CONTRIBUTOR.

Ten years ago, when I first came to Iowa from New England, and began at once to set out apple trees, I was laughed at for my verdancy. "Apples won't do nothing in Iowa,"—said my faithless neighbors. "Why not?"—I asked. "Oh, 'cause they won't,"—was the laconic and logical reply. Not being able to comprehend this argument, I continued to set out trees. What is the result? Simply this: that my apple orchard is by far the most valuable and productive piece of land of its size upon my farm, and is already, at eight years of age, furnishing me with an abundance of delicious, healthful fruit. What think Iowa farmers to-day of the practicability of raising their own apples? One can hardly travel half a dozen miles in any direction in early spring, without seeing as many loads of trees direct from the nursery, destined for the farmers' orchards; and the general expression is "We will soon have one of the greatest apple producing States in the Union." It has already been clearly demonstrated, that with reasonable care, apples will succeed admirably throughout the State; and while this article will be devoted mainly to the consideration of apple culture, many of its suggestions will be applicable to the management of other fruits as well. "We do not gather grapes from thorns, or figs from thistles;" why expect to gather apples from trees "shortened-in" by cattle, and "root pruned" by hogs? Why expect results from apple trees so different from anything else? When we give to fruit one-half the attention, and bestow upon it one-half the care we do upon other crops, and *then* fail, it will be time to charge its failure upon the soil and climate; but, until then, let us not make either the scapegoats of our own shiftlessness, or negligence. Success, then, in apple culture, as in everything else, depends upon certain conditions. *These conditions met*, and we are sure to succeed. The climate is right, the soil is right, or at least so nearly so, as to make success attainable in every part of our State; and it is safe to say there is not a county or a township within its borders, in which apples may not be easily and profitably raised.

PLAT FOR AN APPLE ORCHARD.—Any piece of ground that can be drained so as to be suitable for corn, may safely be made use of for an apple orchard; and yet I would prefer oak land, or rolling prairie, if I had it. Not having such, I set my orchard on the level prairies, and have never seen trees do better. The first step in starting an orchard is a suitable

PREPARATION OF THE GROUND to receive the trees. To this end, plow deeply in the fall, and if the land is ridgy, or poor, put under a heavy coat of manure, and the more wood-ashes (if the land is rolling) the better; if level, turn under a heavy coat of horse manure, and set the trees as high as the natural surface; ridging up to them in cultivating, so as to leave a dead furrow for drainage between the rows, at least two feet below the collar of the tree. Trees should be taken from the nursery in the fall, and "heeled-in" thoroughly, in dry, warm soil, ready for early spring setting. Just here, let me caution all to deal with none but reliable nurserymen, who have reputations which they cannot afford to lose. *Leave alone tree peddlers.* If you know it, don't buy a tree whose root has been divided and sub-divided until there is no vitality left in it. *One root for one tree* is evidently the design of nature, and she has kindly provided the means, if properly used, to furnish all creation with whole roots in abundance. Some slow growing varieties, like the Northern Spy, *may* endure this outrage of division; but others of more rapid growth, like the Yellow Bellflower, will not. See to it, that you get trees that have been grafted upon whole roots; and while you are in the nursery looking to this, see to it, also, that you get trees with low-spreading tops, with sound, healthy bark, and a thrifty appearance. See, too, that they are carefully taken up, with a good supply of fibrous roots. A little care

here, will save one or two years' growth of the trees, and a life-long difference in the health, vigor and productiveness of the orchard.

THE BEST AGE AT WHICH TO SET TREES is probably, two or three years, depending somewhat upon their growth in the nursery. Ordinarily I like three-year-old trees best, *if* proper

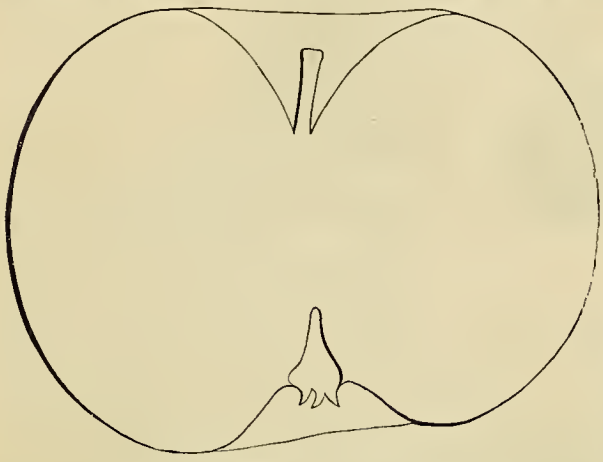


Fig. 1.—MILO.

care is exercised in taking them up, so as to get a sufficiency of roots. Now, having the trees at home, you are prepared to take advantage of time and circumstances in setting. Let the work be done as early as a suitable condition of the soil will admit. One of the manifold advantages of early setting is, that the tree is in a dormant or sleeping state, and is better able to withstand uninjured, the unnatural shock of removal, exposure, and rough handling. Select, if practicable, a cloudy, damp day for setting. Have a bucket of water along, and give the roots a good drenching after they have been put in position, and covered with a few inches of well pulverized soil. Be careful that the roots lie naturally in their places, and that the earth be thoroughly filled in among them; and finally, that the earth at the last filling up be tightly pressed down upon them, covering about two inches deeper than they stood in the nursery.

THE PROPER DISTANCE TO SET TREES.—It is very evident that they should be set much closer

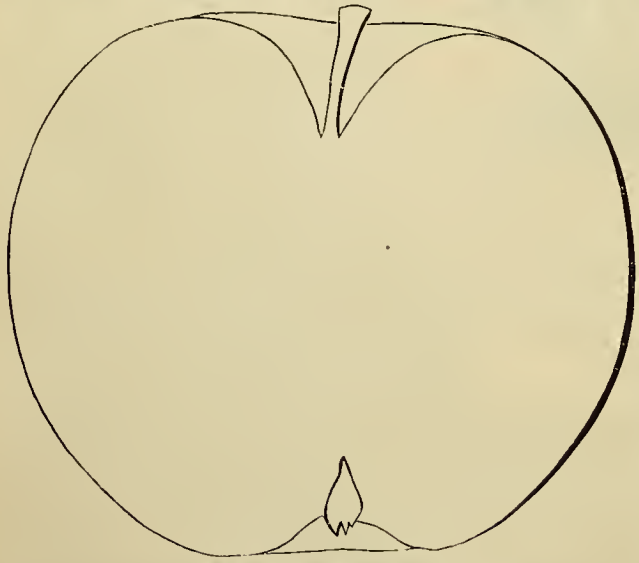


Fig. 2.—LORD SUFFIELD.

here on our prairies than at the East, for the purpose of mutual protection. My own practice is to set from twenty to twenty-five feet apart, depending upon the habit of the tree. Say twenty feet for such varieties as the Northern Spy, and Red June, and twenty-five feet for those with wide-spreading tops like the Yellow Bellflower. By close planting, the trees protect each other, both against wind and sun, both of which are very severe upon newly set trees on our immense stretches of prairie. But in addition to this mutual protection, it is also necessary that the orchard be enclosed on all sides but the south, by some effectual

WIND-BREAKS, at least forty feet from the outside rows. I find for this purpose, the White Willow, and Cotton-wood admirably adapted. Norway Spruce, when it can be had, is still better; but those first named answer a very good purpose. The more protection on the north and west of the orchard, the better. It matters little whether it be hill or grove. If we had hills, or hillsides in the West, as plentifully as our neighbors have in New England, I would by all means recommend them for orchard plats; but not having them, we must resort to artificial means to secure their benefits; one of which has been considered; the other is

DRAINAGE.—It is useless to talk about "fruit in a frog pond." We might as well expect our children to be healthy with wet, cold feet, the year round, as to expect it of our apple, or other fruit trees. Drainage, either natural or artificial, and protection, are *indispensable* requisites of a healthy and productive orchard. By following out the plan ot ridging up, herein indicated, and giving a sufficient outlet to the dead furrows, surface drainage may be secured, which, on level ground, answers a good purpose.

Notes on New or Little Known Apples.

BY CHARLES DOWNING.

MILO.—Syn., The Doctor.—Col. E. C. Frost, of Watkins, N. Y., who kindly sent us specimens of this new apple, says: "It originated with Jonathan Bailey, of Milo, Yates Co., N. Y., and is known as 'The Doctor.' Tree, a very strong, upright grower, both in the nursery and orchard, and a profuse bearer every year; it ripens here in Sept. and the forepart of Oct." As there is already a Doctor apple, the local name, "The Doctor," is likely to lead to confusion, and it is thought best to adopt the name of the town in which it originated.

Fruit medium or above, oblate; skin whitish, shaded, striped, broken splashes of light and dark-rich red, and moderately sprinkled with light dots, a few of which have a brown center; stalk very short and small, inserted in a large, deep cavity, yellowish; calyx half open; segments short, erect, the ends sometimes slightly recurved; basin large, deep, very slightly corrugated; flesh quite white, crisp, tender, juicy, with a pleasant vinous, subacid flavor; quality "very good;" core medium. September and October.

LORD SUFFIELD.—This new English apple is briefly described in the revised edition of the Fruits and Fruit Trees of America; the fruiting of the tree here last summer, allows me to make a more extended description. It is a promising variety for market, and for culinary purposes. Tree vigorous, somewhat spreading, an abundant bearer; fruit large, roundish, slightly conic, obscurely ribbed; skin whitish yellow, with sometimes a shade of red in the sun,

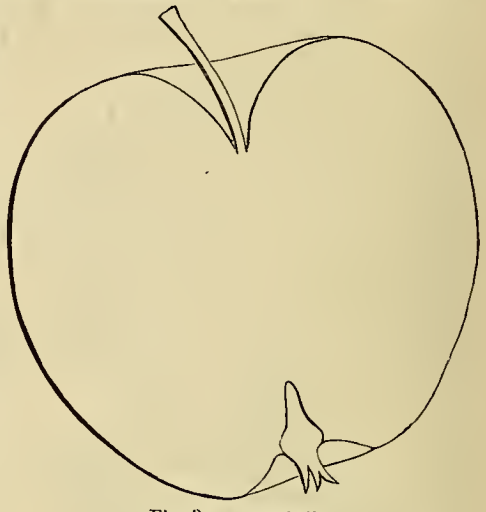


Fig. 3.—SOMERSET.

sprinkled with a few gray dots, and many rather obscure light ones; stalk short and small, inserted in large, uneven cavity; calyx closed; segments short, to a point; basin small, corrugated; flesh white, crisp, juicy, brisk sub-acid; core rather large. Ripens all of September.

SOMERSET.—The origin of this is unknown to me, but it is supposed to have originated in the town of Somerset, Niagara Co., N. Y. Specimens were given me this season, and also a few years previous, by C. L. Hoag, of Lockport, N. Y., who values it highly as an amateur fruit, and for family use. It may be some old variety under another name, but I do not recollect to have seen it elsewhere. It is a delicious eating apple, ripening the last of September and first of October. Tree vigorous and very productive; fruit below medium, roundish, conical; skin whitish yellow, with sometimes a few nettings of russet, and sparsely sprinkled with brown dots; stalk of medium length, slender, often with bracts inserted in a moderate cavity; calyx closed; segments long, narrow, and slightly recurved; basin very small, corrugated; flesh quite white, tender, juicy, with a rich aromatic flavor; quality very good, or best; core rather large.

How to Lay Out a Flower Garden.

SECOND ARTICLE.

In the article last month we gave some simple examples of beds cut in the lawn. This style of gardening can be carried out in a most elaborate manner. In England, in places where expense is not a consideration, the beds are replanted three or four times a year, so that each season, winter included, has its appropriate plants. But few among us will care to attempt this elaborate work. We will not occupy space with plans, giving only two simple ones, to illustrate the principles followed in designing them. Whatever the form of the garden or that of the beds composing it, the two sides must be symmetrical in form, and in planting the colors must be so arranged that a bed of one color will be balanced by another of the same color. It will be seen that these rules are observed in the circular design, fig. 1, where 1 is planted with rose color; 2, 2, 4, 4, and 8, 8, are white; 3, 3, dark lilac; 5, 5, blueish lilac; 6, 6,

yellow; 7, 7, scarlet; 9, 9, purple. The planting here is done with various colored Verbenas, except in 1, where a rose-colored Geranium is used, and in 6 6, where the yellow is a Calceolaria. Moreover, the quieter colors must be towards the center, and the gay and positive ones the farthest from it. In fig. 2 is a design by the late Donald Beaton, for a garden in a front yard, which may have one of the short or one of the long sides towards the house, according to the

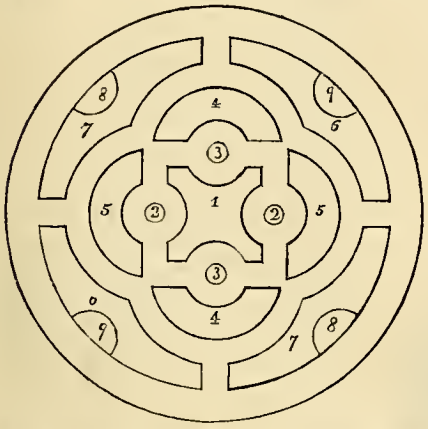


Fig. 1.—CIRCULAR DESIGN OF A FLOWER GARDEN.

nature of the locality. In this plan the beds are edged with box, and the walks laid with light gravel. It admits of being planted in a variety of ways; all the beds may be used for bedding plants, or those upon the side may be for roses and other shrubs, while the smaller ones may be filled with flowers in masses.

To plant even a simple design in the bedding style, requires a large number of plants. Where there is a green-house and a gardener, these can be readily supplied, but if one has to purchase plants, the cost, even at the wholesale price, becomes a serious item. We enumerate some of the principal ones used for garden decoration, remarking that the florists' prices for them are $1.50 to $3.00 per dozen. *Geraniums* or *Pelargoniums*. Among those of the Zonale class we have flowers of the most intense scarlet, salmon color, rose, pink, and white. They

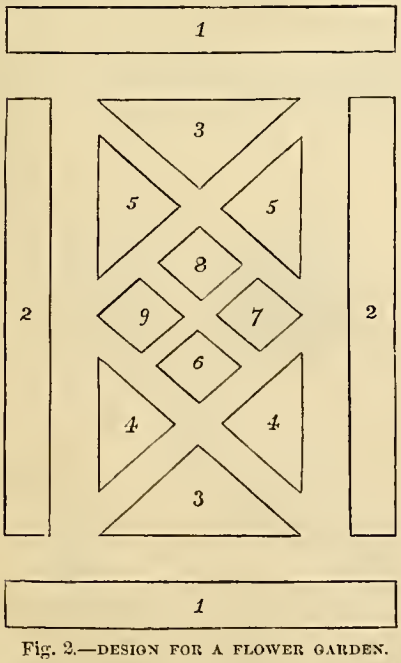


Fig. 2.—DESIGN FOR A FLOWER GARDEN.

flourish well in our climate, and a great show can be made with them. Scarcely any of the beautiful tricolor Geraniums with markings of gold, silver, and crimson, will endure our hot suns. *Verbenas* are among the most popular bedding plants, and give a great range of colors, from white to scarlet, crimson, maroon, and purple. *Petunias*. Only the single sorts should be used for bedding; named sorts may be had of florists, or they may be grown from the seed like annuals. *Lobelias* give us pure white, and the most beautiful of blues. The plants are of low growth, and in ribbon planting should occupy the outside lines. *Shrubby Calceolarias*, though they give crimson and other colors, are valued in bedding for furnishing bright-yellow flowers. These are the leading plants grown for their flowers, besides which we have a number used for the ornamental character of their foliage. Among the most popular and valuable of these are the *Coleuses*. The old *Coleus Verschaffeltii*, with crimson leaves, makes a splendid bed; *C. Veitchii* has a dark chocolate spot in the leaves, and a new set of Golden Coleuses promise to give us a new series of fine shades. *Alternantheras* are low growing plants with small leaves variegated with rose, crimson, and yellow. Among the white or silvery-leaved plants there are *Centaurea candida* and *gymnocarpa*, *Cineraria maritima*, *Gnaphalium lanatum*, and others. These answer admirably to set off almost any of the flowering plants, and are introduced as edgings with fine effect, as well as to separate bright colors in lines of ribbon planting. It is well to dig over the bed several times, at intervals of a few days, in order that the soil may get well warmed through before the plants are set out. The distance apart for the plants will depend upon the habit of growth. Lobelias and small-growing ones should be about 6 inches apart, and the larger ones, such as Geraniums, a foot or more, according to their size.

Rhubarb as a Market Crop.

BY PETER HENDERSON, BERGEN CITY, N. J.

In a recent article on Asparagus, I stated that in consequence of having to wait for returns some years until the crop matured, it followed that the profits when they did come, were much greater than from *annual* vegetables, that were sown from seed and matured the first year. Rhubarb in this respect, is similar to Asparagus. It matures earlier, and is more easily cultivated than Asparagus, as it is a plant that adapts itself to almost any soil, provided it is well drained, artificially or otherwise. The preferable soil for Rhubarb as for most vegetables, is a deep, sandy loam. Whatever the soil, it should be plowed from 10 to 12 inches deep, the subsoil plow following in the wake of the other, stirring to the depth of 10 or 12 inches more; after plowing, harrow deeply and thoroughly.

After the soil is prepared, lines are struck out by the plow 4 feet apart from each side of the field or plot, so that they will intersect at right angles. At these points the plants are set, first mixing with the soil 3 or 4 shovelfuls of well-rotted manure for each plant. The time of planting in the Northern or Western States, may be either in the fall or spring; in the Southern States the fall is preferable.

Rhubarb is usually propagated by division of the old roots; each eye or bud when broken apart with a root attached, forming a plant. But making a plantation of any great extent in this way, is expensive to the beginner, as the plants are rarely to be purchased under $50 per 1,000 eyes, and as about 3,000 plants are required to an acre, quite an outlay is necessary.

This expense may be obviated by increasing the plants by seeds instead of by division of the roots. In the Northern States, the best time to sow the seed is about the first of March, in a cold pit or frame, that is, such a pit or frame as is used for keeping cabbage or lettuce plants in during winter. (See "Gardening for Profit.") The soil best suited is a rich sandy loam, which should be thoroughly pulverized, and the surface made completely level before sowing. One pound of seeds, which will give about one thousand plants, will be sufficient to sow six sashes, or about 100 square feet of surface. After sowing, a soil made *light* with half its bulk of leaf mould from the woods, should be evenly spread over the seed to the depth of one-quarter of an

Fig. 3.—VEGETABLE WORMS—(*See next page.*)

inch, and then nicely patted down with the back of a spade. This is necessary in the sowing of all seeds; for if the soil which covers them is left too loose, the air gets through and dries up the seed, so that they germinate slowly or not at all. Thousands of dollars are annually lost both on the farm and in the garden by the want of this simple precaution. If the surface of the soil in the frames becomes dry, it will be necessary to water, showering freely from a fine rose watering-pot. If the sashes are covered up by mats or shutters so that the soil never becomes frozen, the plants will be large enough, if sown March 1st, to transplant by May 1st, but if not covered up at night they will take three weeks longer. In such sections of the country as are warm enough to begin outdoor operations by the end of February or the beginning of March, there will be no need for sowing under sashes, as sowing in the open air in the manner described, will do equally well.

The plants are fit to be transplanted into the open ground when they are about an inch in hight. The soil to receive them should be enriched and pulverized in the best manner, and the plants set out either in rows 12 inches apart and 3 inches between the plants, or in beds of a convenient width, say 4 feet, and the plants set equidistant, 6 inches each way. By fall they will have grown, if kept clear of weeds, so as to cover all the ground, and may then, in the succeeding spring, be planted out permanently in the manner previously described.

The first season after planting, no stalks should be pulled, as they are yet too young for a crop. But the next year, that is, the third year from the seed, a full return may be expected if proper attention has been given to cultivation.

It is exceedingly difficult to name the annual profits from an acre of Rhubarb in full bearing, as every thing depends upon earliness. Even here in the vicinity of New York, growers vary in their statements from $100 to $500 per acre. The difference of a week in earliness makes a difference of $200 and $300. Here, then, is a chance for many a point in the Southern States,

for if this vegetable will net these profits per acre in the latitude of New York, that from Southern growers, if equally well cultivated, and thrown into our Northern markets three or four weeks earlier, must yield very large returns. We have any quantity of annual vegetables from Southern States, such as cabbage, radishes, onions, lettuce, cucumbers, and tomatoes, but we rarely see a bunch of Southern rhubarb or asparagus. Besides, as these two articles mature their crop in early spring, the low temperature at that season ensures their safe shipment, even if delayed a week in the transit to our Northern markets. The loss in tomatoes, cucumbers, and such articles as become marketable in summer, is often great, from the high temperature at the time of shipment. Most vegetables and fruits would come in better order if they remained in the package 8 days in an average temperature of 50 degrees, than if kept for 3 days in a temperature of 90 degrees. Hence those fruits and vegetables maturing at a low temperature are best fitted to be grown at the South for Northern markets.

Snails, Worms, and Caterpillars.

If the reader of the heading looks for an article upon some pests of the garden, he will be disappointed, as we have reference to the snails, worms, and caterpillars, that are cultivated. On other occasions, we have mentioned striking instances in which animals resembled plants, and have illustrated plants which imitated animals. Some of the seed-pods of the Pea Family bear so striking a likeness to snails, caterpillars, and worms, that at first sight they may be readily mistaken for those animals. The French cultivate a number of plants which are not used so much for food as for garnishing or ornamenting dishes, and in their later works we find included those which furnish pods resembling disagreeable animals we have named. Their use—if it may be called one—is to place upon salads, to surprise those who are at the table. As one of their authors says, "If the surprise is an innocent one, it is certainly not agreeable." As the seeds are now offered by some of our dealers,

Fig. 1.—VEGETABLE SNAIL.

we give figures of the plants, with the remark that they require no special culture. The Vegetable Snail, fig. 1, is *Medicago orbicularis*. Its remarkably twisted pod bears a strong resemblance to a snail shell. The Vegetable Caterpillar, fig. 2, is *Scorpiurus vermiculata*, the pod of which looks much like a hairy caterpillar coiled upon itself. In fig. 3 (on preceding page) we have the Vegetable Worms, the fruit of *Astragalus hamosus*. In the figures, a single fruit is given of the natural size, and a reduced branch of each, showing the habit of the plant.

THE MARSH MARIGOLD.—(*Caltha palustris.*)

Spring Greens—The Marsh Marigold.

A list of all the different plants used as "greens" would be a curious one, as it would include members of widely differing families; some neutral, as far as we know, and some more or less active, but all agreeing in that their leaves and young shoots are tender and not unpalatable. Every now and then we hear of some newly introduced plant, or some old one, which we have grown for other purposes, suggested as a suitable candidate for the pot. Even the leaves of the ornamental Ice-plant and Madeira vine have been made, by some, to serve their turn upon the table. Among our indigenous plants used as greens, none is so generally employed — at least in the Eastern States—as the Marsh Marigold, (*Caltha palustris*), perhaps for the reason that in its localities it grows abundantly, and is readily gathered. In April and May, the wet meadows and the margins of brooks are made gay by the golden buds and flowers of this plant. The leaves are round-heart-shaped, and of a rich green. The flowers, as represented in the engraving, look much like large Buttercups; indeed, the plant belongs in the same family with the Buttercup or Crow-foot. The leaves and tender stems are gathered at or just before flowering time. The plant, when fresh, is considerably acrid, but this quality is removed by cooking. In most localities the plant is known as "Cowslips." It is unfortunate that the early settlers should have applied this name, as the plant has neither resemblance to, nor relationship with, the Cowslip. It is a native of England also, and there it has for hundreds of years been called Marsh Marigold, although it is not a Marigold.

WINTER PEARS.—F. R. Elliott writes:—I regard the neglect to plant and grow more of the winter varieties of pears as a decided error on the part of fruit-growers. It is true, it requires a modicum of knowledge relative to ripening them, over and above that demanded by autumn varieties; but whoever expects to realize paying returns from any business, must understand that business, make it his business, and attend to the business, to which rule fruit-growing is no exception. These remarks are suggested by looking over a basket of winter sorts of pears just received from Ellwanger & Barry, of Rochester, in which Josephine de Malines, Doyenne d'Alençon, and Beurré d'Aremberg, stand prominent for size and quality. Objections are sometimes made by growers to these and some other superior winter pears, on account of the slow growth of tree. Experience proves that such objections, when well understood, are strictly commendations of the variety, as it has been long known by careful observing horticulturists, and recently advocated in Western meetings, that a moderate and slow growth while young, and not too early coming to bearing maturity, are indications of longevity and health in the tree. Columbia, Beurré Duhaume, Beurré Langlier, and others, are as good growers and bearers as market men could wish; but in quality, the fruit for table use will not rank above "good."

[Upon reading the foregoing, we were reminded to look after some Duchesse de Bordeaux sent last fall by Dr. J. S. Houghton, of Philadelphia. Though they were slightly shriveled when put away, from having been exposed at an exhibition, they proved to be of most excellent quality.—ED.]

COAL ASHES FOR FRUIT TREES. — Several have asked whether coal ashes are valuable as an application to fruit trees, and as in various places we have seen small heaps of the ashes

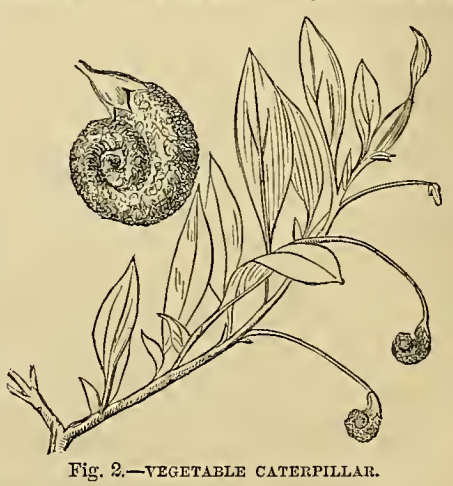


Fig. 2.—VEGETABLE CATERPILLAR.

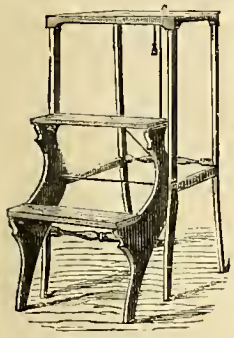
piled against the trunks, we suppose there is an impression that they possess some particular value. Whatever benefit they may be, is due to the small amount of wood ash they contain, which will of course vary with the quantity of wood or charcoal which is used in kindling.

THE HOUSEHOLD.

(☞ *For other Household Items, see "Basket" pages.*)

Library Steps.

Modern furniture at best, is not very strong, and soon becomes worn out even with the most careful usage. Nothing brings a chair into that rickety stage which precedes dissolution, sooner than its frequent use as a substitute for a step ladder. It is the most convenient thing near at hand, if one wishes to take something from a high shelf, reach up to arrange a window curtain, or for any similar purpose. Step ladders are not convenient to keep always at hand, and there is generally more or less trouble in arranging them. The house-furnishing stores sell what are called library steps, like those represented in the engraving. A tall stool has a strong iron rod connecting two of its legs. This rod supports two steps, which are of such a size, that, when not in use, they can be readily turned back, to occupy the space between the legs, and the affair takes up no more room than a stool. Those in the stores are made of black-walnut, with the steps and the top covered with pieces of carpeting. Such a piece of furniture, which any amateur workman can make, will be found very convenient, and save much wear and tear of chairs.



LIBRARY STEPS.

Nice Dishes that all Farmer-Folks can have.

BY MRS. "H. M. R.," MONTOUR CO., PA.

The question, What shall we do for a change? is one which often vexes the housewife, and many times is not so easily answered, especially among a certain class of farmers (and a pretty large class too), who feel that they must make the products of their own farm furnish variety for the table. Among this class, apples are the "stand-by" for fruit, and in nine families out of ten they seldom, if ever, come to the table in but two ways, viz.: between two *lard* crusts, and stewed. I give a few receipes for preparing this esteemed fruit, which, when once tried, will not, I think, be willingly abandoned....Take easy-cooking, tart apples; pare, and with a narrow-bladed knife remove the core; after they are all served in this way, place on a tin plate, the stem or blossom end down, and fill the hole, left by removing the core, with sugar; drop three or four drops of water (flavored with lemon, if you choose) on the sugar in each apple, and set in the oven and bake until done, which will be in about three-fourths of an hour, if your oven is right. Remove to an earthen plate as soon as done, which should be fifteen or twenty minutes before serving. These are excellent with meat dinners, or, eaten alone with cream and sugar, they make a very nice dessert....Some persons consider sweet apples of little use in the kitchen, but when properly prepared, I think they are nearly as good as peaches. Pare, quarter, and core, nice sweet apples, put them in an earthen or new tin dish and set in the steamer and steam until done, which can be told by trying with a fork. Serve, when cold, with cream and sugar. Do not forget to steam and can some before they are all gone, so that you can have them next spring when other fruit is scarce....APPLE PUDDING.—Set as much stale bread in the oven as will make a pint of crumbs. When it is brittle enough to roll, remove, and roll very fine. Take four medium-sized tart apples, pare, quarter, and core, cutting each quarter into four pieces by cutting it in two, both lengthwise and crosswise. Then take one quart and a gill of new milk, the *yolks* of four eggs, one cup of sugar, butter the size of an egg, melted, a little salt, and spice to your taste. Beat the butter, eggs, and sugar together, and stir in with them all the other ingredients. Bake in the same dish in which it goes to the table, unless brought to the table in small dishes. Before removing from the oven, beat the *white* of the eggs with a half cup of sugar to a stiff froth and spread over your pudding, and, when "set," remove from the oven. To be eaten, when nearly cold, with cream....APPLE JONATHAN.—Pare, quarter, and core enough tart apples for two layers over the bottom of a deep, square pie-tin, cutting each quarter in two, sprinkle with a little sugar. Then take one coffee-cupful of sour cream, one of buttermilk, a teaspoonful of saleratus, a pinch of salt, and flour enough to make a batter as stiff as will pour. Stir all well together and pour over the apples, and bake until done. Turn out of the baking tin on to a platter, and serve with cream and sugar.

A Home Letter.

BY FAITH ROCHESTER.

DEAR MARY:—I have been thinking this morning about the inhuman way in which *mothers are overworked.* Did you read a letter from one such woman in the October number of the *Agriculturist?* I hope that was a fictitious letter, [It was not. ED.] but you and I both know real cases just as sad. The thought of them always gives me a heart-ache. There was an excellent reply to that letter in the December number, but I felt, in reading it, that the writer had not been so deeply impressed as I was with the fact that the "overworked farmer's wife" had three little children, "none of them old enough to be of any service." That means, three little ones to hinder the work of a housekeeper. But how about the work of a mother? Preachers and poets tell us that no work is so important. Indeed, everybody is saying so, now that women are supposed to be in danger of forsaking their babies for the ballot-box. If men really believed that the rearing of healthy and noble men and women was of more importance than the improvement of cattle and swine, don't you think they would see to it that mothers had a fair chance to do their work well? But you and I will not blame men for all the misery we see in the lot of woman. To that overworked woman, and to all women, I say, let us all join hands and hearts in earnest efforts to discover just where the mischief lies, and to bring about a better state of things. We shall have to begin our investigations and labors close at home.

Overwork is bad enough in any one—a species of suicide. Its effects are felt by so many others, in the case of a mother, that it is then especially deplorable—yes, sinful. She has no right to make drafts upon the constitutional vigor of her unborn children. Did it ever occur to you what an awful power for good or evil rests with the mothers of the race? If from this hour each child born into the world could have a healthy, good, and wise mother, we should not have to wait long for the millenium. Fathers, however, must bear their share of responsibility for their children's health and characters. Mothers are not independent of circumstances, and farmers should realize that the mothers of their children are entitled to at least as much care and consideration as they give their cows.

Nursing babes suffer when their mothers get very weary. The quality of their food is impaired, and delicate children quickly show that something has gone wrong with them. Nothing in the world tires and worries me so much as to hear the call of my baby when my hands are so engaged that I cannot attend to its needs. Babies should be taught to rely upon themselves a good deal for amusement. It would be foolish to take them or feed them every time they ask it. If they are not suffering real discomfort, they can be easily diverted by a change of position or by a new plaything. Still, they need constant and wise attention. An ignorant nurse will not do at all.

Are you interested in Kindergartens? I am going to find out all I can about Froebel's system of infant education as soon as possible. With little ones already growing around me, there is no time to lose. If farmers need leisure to read agricultural papers and to attend clubs, surely mothers need equal opportunities for informing themselves about their peculiar duties, and the best methods of performing them. It used to be thought that any fool could be a farmer, just as now it seems generally supposed that maternal instinct, such as brute mothers share with us, is sufficient preparation for motherhood. But you know that more than half of all the children born, die before the age of five years. When I look at the diseased and vicious specimens of men and women thrown upon the world, I am convinced that the first three years of a child's life are more important to its character and destiny, than any other three years.

In infancy every touch and tone, and all the scenes of daily life, have such a power upon the opening faculties as they can never have again. Good farmers will not allow some men to have anything to do with their horses and cattle. Should not good mothers be equally careful with their children? When a mother cannot attend to her housework and her children too, the hired labor should be for the kitchen rather than for the nursery, unless she can be sure that the nurse employed is better qualified for the care of children than she is herself. This is sometimes the case. There are different gifts, you know.

Then there are those little questioners, from two years old and upward. Nature keeps them all the time asking, "What is it?" "How?" and "Why?" Some wise and patient friend should be ever near at hand to guide their inquiring minds, and watch over the habits they are forming. Surely, the mother has the first right to this sacred and beautiful office, and to the best assistance her husband can render. Surely, the young women and girls yet to become mothers have a right to such education as shall fit them to answer their children's questions, about the trees, birds, and insects, the clouds and stars, and about the construction of their own bodies, and even the stones and weeds by the wayside. My little boy (not four years old, and not at all precocious, thank Heaven!) often drives me to the dictionary and encyclopedia, and to scientific books, by his most natural questions. It is no easy thing sometimes to fit the answer to his needs, telling him enough to satisfy his present curiosity and keep alive his interest in that line of observation, without burdening or straining his young mind at all. These little ones have no business with the alphabet, but need, instead, intelligent mothers. It is we who need books and lectures. "Bring on your colleges — quick!" I sometimes cry, when Birdie's innocent questions reveal my ignorance to me. Who more needs knowledge than a mother?

Many mothers have all they can possibly do to provide for the common, physical needs of their children. They are so harrassed by the cares of housekeeping that it seems almost impossible to listen to the children's questions or complaints. They need our sympathy as much as do the children, if they fall into a way of scolding and threatening and slapping the little ones. They have no chance to become really acquainted with their children, among whom no two have the same disposition. The little boys and girls soon come to feel that mother does not understand them, and has no time to listen to their questions, experiences, and plans. They go somewhere else to find an intimate friend. Poor children! and poor mother! She needs them as much as they need her.

The very little ones need a mother's care and counsel scarcely more than do the older children. It is not good human economy to use up the mothers in household labor, leaving families of boys and girls motherless at a most critical period of life, or with only a poor broken-down apology for a mother. The boys and girls just going out to mingle with the world, should have at home a wise and sympathizing friend, who knows what sort of an education they are getting from their schools and companions, and from the literature of the day.

Don't point me to our grandmothers, and say, that they had larger families and did even more work than the women of the present day. They

were stronger in health to begin with; but it is a question with me whether we are not suffering the visitation of their sins upon us, in the way of weak constitutions. It is certain that the children of our day are much more difficult to take care of than our grandmothers' were, and our houses are harder to keep, in spite of modern improvements. There are more rooms to take care of, we use more crockery at every meal, and cook a greater variety of food. There is more clothing to make, wash, iron, and mend, for each member of the family. General society makes greater demands upon wives and mothers, and more papers and books come into our houses, wearying us with their cries to be read. I don't think we need feel at all ashamed or discouraged if we are unable to do all that our grandmothers did. Like them, let us teach our sons and daughters to help us. It may not be easy to teach them, but it will pay both them and us. It is a false tenderness that seeks to spare the pretty hands of a child, and dreads to put a portion of our care upon the young shoulders. It should be done with kindness and moderation, and for the sake of their discipline as well as for our relief.

"The farmer needs, above all else, a clear head, with all his faculties of mind, muscle, light and active, and under complete control. Much depends upon temperament, but as a rule such men need sound sleep and plenty of it." Is not the remark just quoted equally applicable to mothers? "Sound sleep and plenty of it!" Some women never know *that* for years and years of their lives. They have no vacations from the confining care of young children, and they go constantly hungering for the sleep they need but cannot get. Much would be gained in the way of rest if the baby never slept in the same bed with both its parents. In warm weather, a crib beside its mother is better; and in very cold weather it should have a good bed by itself. The baby should not sleep upon its mother's arm, as neither can rest soundly or comfortably. It can be taught on the start to take food only once during the night, and may be weaned from night nursing altogether when quite young.

From all our lives, some things get "crowded out" which we would gladly do. It is a nice point to settle what shall be done and what left undone, and it is in deciding this that character shows itself. I say, let us cherish especially those things that tend most to make our families healthy, cheerful, and intelligent. We may cut down a good deal in the way of clothing and pastry, and be the gainers for it. Women owe it to their husbands that they talk these things over frankly, and both should labor together to do that which is for the general welfare. Even in the worst cases, there is generally more thoughtlessness than unkindness on the part of husbands. Mothers spoil their sons from one generation to another, by living before them uncomplaining lives of drudgery and slow suicide. These sons never heard their mothers "complain," and they expect as much from their wives as their own mothers accomplished.

Cause of Sour Bread—Yeast.—"A. M. C.," Cumberland, Md., asks why bread is sour after it is baked, and wishes to know if there is any acid in flour. Flour contains no acid, but is capable of producing acids. When bread is raised slowly, especially if leaven (sour dough) is used, some lactic acid is formed, the chemistry of the production of which we will not now consider. Again, when we add yeast to bread to cause fermentation, some of the flour is decomposed, a small amount of alcohol is formed, and carbonic acid (gas) is set free, which makes the dough light, and causes it to raise. When the bread is baked, this fermentation is stopped, and the expansion of the gas, which was involved in the dough, makes the bread still more porous. If the dough remains too long before it is baked, another kind of fermentation takes place, and acetic acid is produced, which gives the bread a sour taste. A good bread maker shows her skill by putting her bread into the oven before souring has set in. Even the most careful will, especially in warm weather, occasionally have a batch slightly soured. The trouble is then corrected by working in a little soda, thoroughly dissolved in blood-warm water, just before baking. It is best to avoid the necessity for using soda by having quick, fresh yeast, and raising the dough as soon as possible.

A lady correspondent, "M.," says that by using the following yeast she never has sour bread: "To make yeast that will keep; put a handful of hops, in a bag kept for the purpose, into 2 qts. of boiling water; while steeping, wash, peel, and grate 6 medium sized potatoes, take out the hops, put in the potatoes, boil a few minutes, stirring constantly, add ½ teacup salt, ½ teacup white or light brown sugar, let it cool, then add a teacup of potato yeast, if you can get it, if not, brewers' will answer, let it rise until a mass of foam, then stir it down, put it in a large-mouthed jug and keep it corked tight. Observe, if you jug it before it has ceased working, the cork will be thrown out. For a large family, perhaps a larger quantity, than here indicated, will be necessary. I have used yeast made in this manner for several years, and never lost any from souring in the hottest weather. A teacupful will raise two large loaves. The special point in this yeast is that there is no flour used in it."

Household Talks.

BY AUNT HATTIE.

I have been fixing up an old rocking chair that has done nursery service for many years. The cane bottom seat was almost gone, so first with a pair of scissors, I picked out the whole of it from the holes, leaving nothing but the frame. I had previously procured some strong packing twine, which I threaded backwards and forwards after the manner of cording an old-fashioned bedstead, making a very durable seat; then I made a cushion, and a cover for it, and I value it now more than ever.

I notice that my new girl wears away a broom all on one side. There is nothing annoys me so much as to be obliged to use a broom that has been so worn. I should be ashamed to have any one see Libbie's kitchen broom as it is now. I think nothing is so suggestive of extravagance and bad housekeeping as a one-sided broom. There is no necessity of having a broom worn down in this way. When sweeping, hold the broom up, almost perpendicular, and brush rather than sweep, being careful to turn the broom and keep the longest side towards the carpet or floor. A broom kept straight, will last three times as long as one allowed to wear all upon one side.

Mrs. Gilman asks me to write more about making cake. She does not mention her own skill or want of success, but writes: "Some of my neighbors make shocking cake! What is the reason that cake is not only heavy but oily at times?"—I remember that mother used to say, the way to have light cake is to beat the whites of the eggs to a perfect froth, and add them lightly, the last thing. That was very well in those days, when eggs were only 5 to 8 cents per dozen, and we put in nine or ten to an ordinary sized cake, but now, when the farmers get 35, and the grocers 40 cents for them, it is evident that cake must be made light in some other way. I use only one egg to one loaf of cake, but I am careful to obtain good baking powder, or pure cream of tartar, and good soda. I think one great secret of light cake making, is this keeping the ingredients in a state of foam, during the mixing. For instance, beat the sugar, butter, and the yolks of the eggs until they turn white and creamy. Then add milk, if used, and some of the flour, beat and stir one way all the time until the ingredients are mixed, and bake immediately. If cream of tartar and soda are used, mix the former with the flour, and add the soda dissolved in a tablespoonful of warm water, the last thing before the white of the eggs. I imagine that cake is oily, at times, for the reason that the proportions are not properly measured. The sugar in all cases should be as much as, or more than twice the quantity of butter, and the flour should be equal in quantity to the butter and sugar together, thus: 1 part of butter, 2 parts of sugar, and 3 parts of flour. If these rules are observed, and the baking powder is good, you cannot fail to make good cake. I make a very nice cake using only one egg, as follows: Take one small teacupful of butter, warmed, two and a half teacupfuls of sugar, and the yolk of the egg; beat well together, then add one-half teacupful of milk; add gradually, beating one way, three teacupfuls of flour; flavor with very fine strips of citron or candied lemon peel. Finally add three or four teaspoonfuls of baking powder, the white of the egg, and bake in a buttered pan lined with white paper.

I manage my washing in this way. The evening previous to washing-day I put on the boiler and two gallons of soft water, allowing about a quarter of a pound of sal-soda, and a quarter of a pound of soap sliced; let them boil together until the soap and soda are dissolved. I then put the fine white clothes into one tub, and the coarsest ones into another. To the water in the boiler I add enough cold water to make the whole luke warm, and pour it over the clothes, and cover the tubs with a blanket. In the morning I add a pailful of hot water to the fine clothes and rub them well from this. They then go through another rub in fresh water, are next boiled twenty minutes, sudsed, rinsed in blue water and hung up to dry. The coarse clothes receive the same treatment. My colored clothes are washed, rinsed, and starched before hanging out.

In starching my muslins and the shirt bosoms and wristbands, I use boiled starch, being careful to rub in well the starch, that is, after the shirt bosom has been dipped and wrung out as dry as possible, it is well rubbed and patted between the hands. This is a secret known to all good laundry women, and it is almost impossible to prevent the iron from sticking unless this precaution is observed. I cannot make Edward's collars stiff enough with boiled starch, so I always use cold starch for them. Take two teaspoonfuls of starch, and perhaps a half teacupful of water, or a little more. Have the starch thoroughly mixed before dipping in a collar, wring out, and rub and pat with the hand, spread on a clean towel, and when all are done, roll up the towel and iron in about an hour.

Hints on Cooking, Etc.

Cooking Parsnips and Cabbage.—"Lucy Lamb," says: Wash the parsnips, scrape, boil tender, and then slice and brown on a griddle, with butter to prevent sticking. Carrots are good, cooked in the same way....Boil cabbage tender in clear water; drain dry, add salt and a good piece of butter put on in little bits; cut in small squares for convenience in serving. Another method, requiring only half as much time in cooking, is to chop the cabbage fine before cooking; boil in clear water forty or fifty minutes, and serve as above. It is nearly equal to cauliflower.

Raised Cake without Eggs.—By Lucy Lamb.—Eggs are scarce and expensive, and we invent recipes which require few or none. Stir together a coffee-cupful of light sugar, and half a cupful of butter; add a pint of warm water, half a cupful of yeast, and flour enough to make as thick as ordinary fruit cake. Rise over night. When very light, add a little mace, cinnamon, allspice, and nutmeg, and a cup of chopped raisins. Put in the pan, let rise until light; then bake.

Marion's Cake.—Stir to a cream a teacup of butter and two of sugar; then add four eggs beaten to a froth, one small grated nutmeg, and a pint of flour. Stir until just before it is baked. Bake in cups, about 20 minutes.

Corn Cake.—By Mrs. R. E. Griffith, Chester Co., Pa.—1 pint of buttermilk, 1 pint of corn meal, 2 beaten eggs, 1 teaspoonful of soda; beat well together and bake in shallow tin pans. Increase quantities for more than four or five persons.

Cookies.—By Mrs. L. A. G. 1 large cup of butter; 2 cups of sugar; 3 well beaten eggs; ½ a cup of sour cream; 1 level teaspoonful of soda; cinnamon or carraway seeds, and flour enough to roll.

BOYS & GIRLS' COLUMNS.

Street Toys.

If you were to walk down Broadway you would be surprised at the number of men—all of whom look strong and healthy enough to do a good day's work—who are engaged in selling childrens' toys from little stands placed at the street corners, or upon the steps on some building. If you passed by these venders day after day, as I do, you would notice that the stock frequently changes. A dealer will for several days offer figures that tumble heels over head. After a while he will have those which dance at the end of a rubber string, then again, some kind of tops will be for sale, until they in turn will be replaced by a new fashion in toys. I frequently buy these street toys, and if they are sufficiently interesting, tell the Boys and Girls about them. One of the late toys consists of a pasteboard man without any legs, and a pair of pasteboard boots hung by threads to the figure. At first sight, one is puzzled to know what to do with such a toy. At the back of the toy is an elastic band, shown in the engraving, figure 1, by a dotted line. Two fingers are slipped between this elastic and the figure, and one of the boots put upon the end of each finger, and you have a Highlander; the fingers represent the bare legs which are considered necessary to a Highlander when in *full dress;* the knuckles make capital knees, and when by moving the fingers the image is made to walk or dance, the effect is laughable. The figure should be painted to represent the gay colors of the Highland costume, but the one I got was dressed like a jester or clown. There is another toy just now popular—a puzzle. It is a coil of brass wire of the size of figure 2, upon which a ring is placed in such a manner, that two wires of the coil pass through the ring. The puzzle is to get the ring off the coil. It cannot be screwed off by turning the coil, as that is prevented by having the ends of the wires of the coil soldered so as to prevent the ring from going off in that way. I could *show* you in a few seconds how it is done, but to describe it is quite another matter. Let us begin by putting the ring on. Suppose you have a coil of wire and a ring like those shown in the engraving, but both separate. Put the ring over the top of the coil and bring it between two of the turns of the coil; then give it, the ring, a turn or a twist from left to right, and it cannot be taken off without turning the ring back again from right to left. The manner of passing two or more turns of the coil through the ring is easily found out by trying.

Fig. 1.

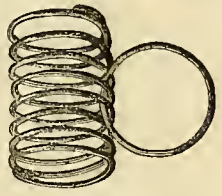
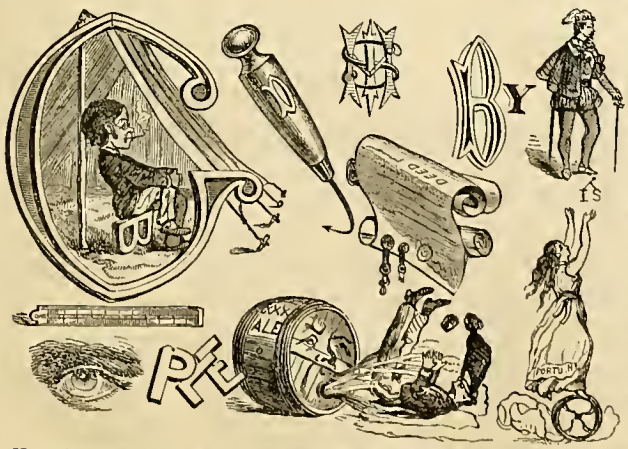


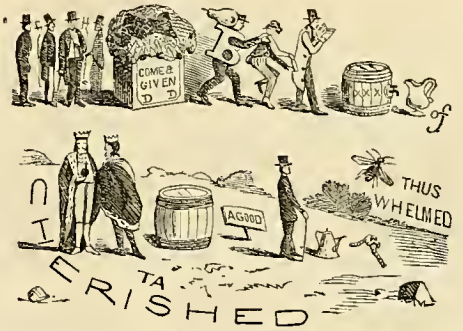
Fig. 2.

WILL WARREN.



No. 371. *Illustrated Rebus.*—The artist here pictures a maxim which is a little difficult to make out in the picture and not easy to exemplify.

No. 372. *A Problem in Liquid Measure.*—Two men have purchased together an eight gallon keg of vinegar; when they come to divide it they find that they have only two empty vessels, one of which holds 5 and the other 3 gallons. How can they divide the vinegar by the use of these vessels so that they may have 4 gallons apiece?



No. 373. *Illustrated Rebus.*—A pictorial statement of a melancholy fact—intended as a warning, not an example.

No. 374. *Arithmetical Puzzle.*—Two women were going to market with eggs. One asked the other to give her an egg, and then they would each have an equal number; "No," said the other, "give me one of yours and I shall have twice as many as you have. How many had each?

A Letter from a Little Girl.—Ida May, a girl in her fifth year, sends the following account of her cat. "Pussy tom-cat is just the nicest cat I ever saw. He is just now taking a nap on the rocking chair; he hardly ever lies on the carpet, he mostly lies on the lounge or cushioned chair. When he lies on the lounge he puts his head on the pillow like some old man and then I slip my doll in his arms, and that makes fun for us all. If he gets tired sleeping, sometimes he takes a big romp with us and plays hide, and when we hunt him behind the curtains, then he jumps at us and paws us a little. We fetched pussy cat sixty miles, and if we went sixty more, pussy tom-cat would have to go along. Pa says he would n't take ten dollars for my cat."

Don't Forget the Birds.—It is very pleasant to see the birds in the spring, and one, whether he lives in the country or in a town, can have many of them near the house, and receive much pleasure from watching their cunning ways. A little box fastened to a tree with a hole for entrance, is much better than the showy houses some build. It is great fun to see a pair of birds inspecting the "house to let," and when they have taken possession, to observe how industrious they are in gathering materials for their nest. They can be made much more interesting if you scatter feathers, threads raveled from cloth, and such other materials as they use for building; and if you put food in a place near at hand every day, some birds will come regularly to look for it.

Rambles in China.—Street Scenes.

BY "CARLETON."

The people who live down beneath our feet on the other side of the world, have such queer ways of doing things, such strange manners and customs, that I am sure the young people of this country would open their eyes wide, were they to see them; but as you cannot go there just now, let me be eyes for you and tell you how we traveled in China. It is a hot, sultry day, when we set out from the house of a merchant, who deals in teas and silks, to see the old city of Canton. It is one of the oldest in China. No one knows when it was founded, but it was ever so long before Abraham went from the valley of the Euphrates into the land of Canaan. For more than 4,000 years it has been a city. Hundreds of years before Joseph was sold a slave into Egypt, boys and girls were playing in the streets of Canton, or paddling boats on the river, or catching fish in the harbor.

The city is situated on the north bank of the Canton River, which, as you will see by looking at your school atlas, rises among the hills in the southern part of the empire, runs east, and empties into the China sea. It is about as large as the Connecticut. It winds through a lovely country, and as you look towards the west, you see the beautiful White Cloud hills, bordering the valley of the stream. Little villages are nestled on their sunny slopes. The fields are very green, and so are the pastures, for the Chinese save all fertilizers to enrich the soil.

To travel in China, we must either take a coach or a sedan, or else go on foot. I dare say that most of you would prefer a coach rather than to foot it. But the streets are narrow—some of them are not more than six or eight feet wide, and such coaches as you are accustomed to see here in the United States, would get stuck between the houses in about two minutes. But the coaches of Canton are adapted to the streets. They have only one wheel...." *Only one wheel!*"—I thought you would open your eyes wide. Besides, one of the horses pushes while the other pulls; only there are no horses, for two Chinamen are harnessed up instead!

I do not wonder that such a story is rather more than you can swallow, but just look at the picture on the next page and see the coach and the team under full headway.

"*A wheel-barrow!*" Of course it is. You will find no other coach in Canton. It is Paddy's coach, sure enough; and long before an Irishman ever trundled a wheel-barrow through the streets of Cork, centuries before Ireland was known, these wheel-barrows were wheeled through the alleys and lanes of this wonderful old city of China.

I wish you could hear them squeak for about five minutes. The axles are of wood, and the squeaking is terrific. You can hear them all over the city, making a noise as if saying over and over with every turn of the wheel the old Greek word, "*Eu-re-ka, Eu-re-ka, Eu-re-ka,*" which means, "I have found it." And you will wish all the while that they had found a little more of *it*—grease I mean. You have heard a creaking door, or, perhaps, have made your slate pencil give a squeak on your slate now and then; but this "Eu-re-ka" is more excruciating than a score of doors or a hundred slate pencils all going together.

Where there is but one passenger, he rides astride of the coach, and if two are carried, each sets upon a shelf at the side of the vehicle.

Where the street is level, the Chinamen go upon the trot and the two passengers get well bounced and bumped, though they seem to enjoy it. It is a very funny scene—the fellows upon the run, and their pigtails dangling down their backs, or streaming in the wind.

If we do not want to take a coach, we may try a sedan, which is a box, with a seat in it, a leather top to keep out the rain, and curtains in front and at the sides, which we may have up or down just as we please. Two long poles are fastened to the box. Getting in, we are raised from the ground by two men who put the poles on their shoulders, and we go springing up and down with a wave-like motion, which is a great deal more pleasant than teetering on a board. The sedan is also shown in the picture. It is a strange sensation that comes over us, to find ourselves in a sort of hen-coop moving up and down, and carried by men with broad-brimmed bamboo hats, shaped like the cover of a teapot, curving from centre to circumference with a knob on the top. The hat is so large, that, when it rains, it answers for an umbrella. It is much more pleasant to go in a sedan than on a wheel-barrow; but if you want to see all that is strange and curious, it is better to ramble on foot.

We shall have a crowd at our heels, for the Chinese are as curious to see us as we are to see them. We hear them cry "*Fanqui*" "*Fanqui,*" which means that we are foreign devils. They look upon us with contempt. They consider themselves as being far superior to any other people on the face of the earth. We people of the United States are powerful, we have big ships and great guns, steam-engines and locomotives, and telegraphs; we can make iron swim and send messages beneath the sea; we can call the lightning from the skies and make it our servant to carry our thoughts all over the world; we can make the sun take our pictures; we can do many things that they cannot, but we are wicked in their esteem. They think that the inhabitants of the United States are like the English, who have had two wars with the Chinese. The English war ships bombarded their cities; English troops marched into Pekin and pillaged the Imperial Palace, and now China speaks of an Englishman as being "a red-faced foreign devil."

But though they shout "*fanqui,*" they will not harm us. They will grin in our faces, invite us into their shops, and do their best to sell us their goods.

The narrow streets are full of people, and it is all we can do to get along. If we do not keep a sharp lookout, we shall be hustled about, jostled this way and that, and, perhaps, receive a poke in the ribs from somebody, who pays no attention to anybody but himself, and whose only thought is, to get on as fast as possible.

We meet a dozen men staggering along with a block of stone, and all shouting "*Hooto!*" "Get out of the way!" If we did not dodge into a door-way or a side street, they would run us down.

Multitudes of men are carrying baskets, boxes or chests of tea, and bundles, not in their arms or on the top of their heads, but each of the carriers has a stick about six feet long over his shoulder, with cords or ropes at each end, which he ties to the bundle or tea-chest, so that, as we look at them, it seems as if the scales in the shop had somehow found legs and were walking up and down the streets. Only the Chinese do not use scales, but do

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SCENE IN A STREET IN CANTON.—*Drawn and Engraved for the American Agriculturist.*

all their weighing with steelyards; though the instrument is seldom of steel, but usually of wood; or, if for weighing small things, it is made of ivory or bone.

The houses are not very large, or very high—hardly ever more than two stories. They are built usually of pale-blue brick or stone, and in some places of wood. The roofs are all curved. We never see any that are flat or sloping, and they are covered with tiles, such as you may have seen on some of the old houses in New York, or at Albany or Schenectady, brought over from Holland by the Dutch settlers before the Revolutionary war.

The Chinese are very fond of adorning their houses with grotesque figures of dragons, with a head shaped like that of a horse, with great goggle eyes, a mouth wide open, and a tongue like a dart! The body is part horse and part lizard, ending in a long, tapering, arrow-shaped tail. It is covered with scales, and has wings like an eagle's. It has four legs with claws, like a turtle's. It is the Imperial emblem on the flag of the Empire, just as the eagle is the emblem of the United States, or the lion and unicorn that of England, or the elephant that of Siam.

Wherever we look, we see representations of dragons—sitting on the ridge-pole of the houses, on the corners of the roofs, or over the windows. They glare at us from beneath the eaves; open their mouths from above the door-ways; thrust out their tongues at us from the tops of pillars and posts. Every shop-keeper displays a flag or banner of red, green, crimson, blue, yellow, or purple, with a dragon upon it; and so as we look along the narrow streets, we see bright colors everywhere, and dragons everywhere, and men hurrying everywhere, and the sensation is so strange that we can hardly tell whether we are in this world or whether we have been transported to one of the planets! Every house has a lantern hanging over the door, and sometimes there are three or four of them, as large as barrels! They have light rattan or bamboo frames covered with oiled silk, on which we see a great dragon spitting thunderbolts!

The houses have no fireplaces, furnaces, or stoves, and the doors and windows do not shut so closely as in our own houses. In Canton the winters are not very severe, though there are some cold days. If a cold day comes, they put on more clothing. Up among the hills in the interior, and in Northern China, a foot of snow sometimes falls, but even there they have no fireplaces. Fuel is scarce. They gather a few sticks, build a fire on a hearth in the centre of the room; and then at night, all the family—father, mother, and children, roll themselves in their blankets and lie down on the warm bricks.

I am confident that you cannot guess what sort of pillows they have...."*Feathers?*—No...."*Straw?*"—No. Try again...."*Leaves?*"—You have not hit it. They use a wooden block, and think it a great deal better than a bag filled with feathers. Every Chinaman, when he is traveling, carries his wooden pillow with him.

In traveling around the world, I have slept many a night on the soft side of a white oak plank with a piece of the same for a pillow, and one don't mind it much when he gets used to it. If any of you want to know how the Chinese sleep on a cold night, you may easily find out by wrapping yourself in a blanket and lying down on the hearth with a stick of wood for a pillow. One night will satisfy your curiosity. In summer, the Chinese sleep on bamboo couches or rattan settees, which are quite comfortable. They have very nice easy chairs, made of rattan. Their tables and stools are richly carved. They have teacups and bowls almost as thin as egg shells, so delicate, that you must handle them with great care. They have beautiful and costly vases, all covered over with Chinese scenes of men and women in the tea gardens, gathering and drinking tea; of mandarins being carried in sedans, with crimson umbrellas borne before them; with men beating gongs and girls playing on guitars; with pictures of green fields and shady groves, birds of Paradise and peacocks.

The floors in the houses of wealthy Chinamen are of porcelain—red, white, blue, and green—with landscapes painted upon them, each piece being painted before the clay is burned in the kiln, where their tiles are manufactured. The Chinese are far ahead of any other nation in the manufacture of porcelain. Three thousand years ago, they had just such teacups as we see in their houses today. If you were to go to Egypt and dig among the old mummies, which were laid away in the tombs at Thebes when Joseph was ruler of Egypt, you would find such porcelain as is now made in the potteries of China.

The door of a Chinese house is almost always open during the day, and as we look in, we see beautiful silken screens embroidered with delicate floss—the work of the girls and young ladies who have nothing else to do.

Upon the walls are paintings of birds with beautiful plumage, butterflies with gorgeous wings, and flowers of most delicate tints; for, though a Chinese artist in his attempts to paint a landscape, gets men and women, hills and valleys, houses and trees, all mixed up, so that we cannot tell which is which or what is what, because he does not understand the rules of perspective in drawing—yet, he can produce beautiful and brilliant colors, and paint charming pictures of birds and butterflies.

We have hardly got started on our ramble through the old city, but have seen so much that we must stop and think it over. We are apt to read too fast, and too much at once, as well as eat too fast, and the mind as well as the stomach wants time to digest its food. But before we get through our stroll, through the narrow streets, we shall see many things to laugh at, and I dare say, we shall exclaim again and again, what a queer people!

Answers to Problems and Puzzles.

We are always glad to receive rebuses and puzzles from our friends, but the answers should accompany them. No. 370.—A foul proceeding with a beacon fire.—A fowl proceeding with a beak on fire. The following have sent correct answers. C. H. McCartney, W. J. Bishop, Frank M. Hall, J. R. Kaufman, R. A. Baker, Jr., Mary Hilton, Chas. Roberts, Julia A. Green, Clarence Duneter.

(Advertisements on this page $2.50 per Agate Line of Space.)

HERALD OF HEALTH.

The JANUARY number contains:

I. The Two Wives.
By Mrs. Elizabeth Oakes Smith.
(*This is a delightful story to continue during the year.*)

II. The Danger of Blistering.
By Dr. Daveene Pere.

III. The Training of Young Children.
By A Mother.

IV. Generosity and Benevolence.
By Henry Ward Beecher.

V. Physical Growth and Development.
By Archibald Maclaren, Of the Oxford Gymnasium.

VI. Bathing Children.
By Mrs. R. B. Gleason, M. D.

VII. Hygienic Treatment of Dogs.
By Dr. Dio Lewis.

VIII. Industrial Education.
By Mrs. Horace Mann.

IX. Studies in Physiology.
By Prof. T. H. Huxley.

X. New Receipts for Healthful Puddings.

Home Treatment of Cholera Infantum, of Dysentery, of Bad Smelling Feet, of Whooping Cough, of Burns, of Frozen Flesh.

Human Physiology for the people; A man in a Chamber of Ice; Hunger and Thirst; Food; Waste and Supply for the Body; The Erect Position in Man; Mind not the Governor; The Brain; The Blood; The Philosophy of Death.

THE FEBRUARY number contains:

I. The Care of the Eye.
By Rev. C. H. Brougham.

II. An Active Life.
By Rev. Henry Ward Beecher.

III. The Landlord of the Blue Hen.
By Phœbe Cary.

IV. Present Duty of Temperance Men.
By Rev. J. C. Holbrook, D. D.

V. The Prisons of Paris.
By Prof. E. P. Evans.

VI. Spurs and Reins for those who need Them.
By Dr. J. C. Snodgrass.

VII. How to Dress a Baby.
By Mrs. R. B. Gleason, M. D.

VIII. A Successful Experiment with Small Pox.
By Frances Dana Gage.

IX. The Book Worm—Brute Force—Care of School Boys—Systematic Exercise—Mal Growth—Lost Days—Learn to say No—Breaking Bad Habits in the Egg—Death of E. M. Stanton, and of Mrs. Dr. Lozier—Hair Dyes—Horticultural School for Women—Cure for Chronic Diarrhea—Treatment of Felons—Of Chicken Pox—Of Sprains—Of Colds—Feeding the Sick—Food for Infants.

THE MARCH number contains:

I. Fern Grove Gymnasium.
By M. G. Ives Seymour.

II. Take Care of Your Noses.
By Rev. C. H. Brigham.

III. How to Feed Babies.
By Mrs. R. B. Gleason, M. D.

IV. The Treatment of the Sick.

V. Rapid Upward Growth.

VI. Stunted Youth.

VII. One-sided Growth.

VIII. A Pale Skin.

Arrest of the Heart's Action—Evidence that the Blood Circulates—*Blushing*—Why the Veins are Pulseless—A Cut Artery—The Pulse—Our Studies in Physiology—Growth and Physical Development—A Moody Household—A Crafty Woman—Out-door Professions for Women—Work, the Heart does—Keeping Up with the Times—Debt—Cure for Constipation—Insanity—Sleep Alone—Cure for Neuralgia—Hiccough—Delirium tremens—Swimmer's Cramps—Constipation—Cold Feet—Etc., etc., etc.

Each number during the year will be filled with original articles from the best writers, and we shall make a Monthly, which will help every reader to live a higher and a nobler life, both physically and morally.

Every subscriber who sends us $2 for 1870, will be entitled to a splendid **Steel Engraving** of

Alex. von Humboldt—Free.

$2 a year. Samples 20 cts. We send the Herald and the Weekly Tribune, one year, for $3.35; or, the Herald and the American Agriculturist for $3.—See for more complete prospectus December Agriculturist, 1869.

WOOD & HOLBROOK,
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United States Watch Company,

MARION, N. J.,
Manufacturers of all the Grades of American
Watches, Pendant Winders and Key Winders,
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The finer grades all having three pairs **Conical Pivots, Cap Jeweled,** in **Gold Settings,** and accurately adjusted to *Heat, Cold, and Position*; and all, even in the cheapest grades, have the STRAIGHT-LINE Escapement, with Exposed Pallet Jewels, and Hardened and Tempered Hair Springs; and for our late improvement in STEM-WINDING mechanism, we claim a *STRENGTH, SIMPLICITY,* and *SMOOTHNESS* hitherto unattained in any other manufacture, at home or abroad.

Constantly on hand, full lines, all sizes, in Gold, Silver Diamond Set, and Magic Cases, Minute Repeaters, Independent 1-4, 1-5 Split and Fly-back Seconds, for taking three different times.

WHOLESALE WAREROOMS,
13 Maiden Lane, New York,
And GILES, BROTHER & CO., 142 Lake St., Chicago, Ill.
GILES, WALES & CO., 13 Maiden Lane, N. Y.
New York, Jan. 17, 1870.

☞ Watch No. 1089—Stem Winder—bearing Trade-Mark "Frederic Atherton & Co., Marion, N. J.," manufactured by United States Watch Co., has been carried by me from December 1868, to January 17th, 1870; its total variation being only *two seconds* in the entire time.
L. E. CHITTENDEN, Late Register U. S. Treasury.

☞ Price-Lists furnished the trade on application, enclosing business card. For sale by the trade generally.

WATCHES manufactured by the

United States Watch Co.,

Of MARION, N. J., retailed and sent to any part of the country, by **C. A. STEVENS & CO.,** Jewelers, 40 East 14th Street, Union Square, New York.
☞ Call or send for Price-List.

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Send for a description of the New Educational Invention,

EASTMAN PENMAN'S ASSISTANT,

now exciting so much interest in Educational and Business Circles. It is effecting a revolution in the Writing Art. Agents Wanted. It is the best Agency offered. Sample set (full outfit for a writer) mailed for $1.50. Illustrated Journal 10 cents. H. G. Eastman, Eastman College, Po'keepsie, N. Y.

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Will address for *Illustrated Catalogue* (3,000 graduates in successful business) of *Eastman Business College, Po'keepsie, N. Y.* It is the oldest, best, and largest patronized Institution of the kind in the world, and the only one providing situations for worthy graduates. H. G. EASTMAN, LL.D., President, Poughkeepsie, N. Y.

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211 Washington St., New York.

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CLEANS WINDOWS, MARBLE, KNIVES.
POLISHES TIN-WARE, IRON, STEEL, &c.

For Sale Everywhere.

The Novelty Knife

For Ladies and Gentlemen.

Has one ordinary blade, and one new patent blade unequalled for a sewing ripper, eraser, nail trimmer, and many other uses. Is made of best steel. Price by mail, post-paid, plain handle, $1; Ivory, $1.25; Shell, $1.50; Pearl, extra finish, $1.75. For sale at Hardware, Stationery, and Fancy Stores, and Sewing Machine Agencies, and wholesale and retail by A. C. FITCH, Gen. Agent.
27 City Hall Place, New York.

Get the Best.—In nothing will this injunction better apply than in selecting musical instruments, and more especially in purchasing Parlor Organs. It is now a well established fact that the best instruments of this class manufactured, are the American Organs, made by Messrs. S. D. & H. W. Smith, of Boston. These instruments possess every requisite, and, indeed, many excellencies which the organs of other makers do not. Musicians are not at all surprised at their great popularity for they know them to be all and every thing they are claimed to be. Whether for the home circle, the chapel, or the lodge room, there is no organ that unites so many desirable qualities.

CISTERNS PREVENTED from overflowing, and from bursting, by Muss' Patent Automatic Water Leader. Agents wanted. State and County Rights for sale. For particulars inquire of J. MUSS, Box 726, Quincy, Ill., or J. R. MITCHELL, Salem, Columbiana Co., Ohio.

American Vinegar Generator.

New plan, just patented. For full description, &c., send stamp to A. D. STRONG, Ashtabula, Ohio.

KNOX

Fruit, Farm & Nurseries.

GRAPES,

Strawberries, Raspberries, Blackberries, Gooseberries, Currants, etc.

☞ Our stock of **VINES AND PLANTS** this season is the largest and best we have ever offered, and we **GUARANTEE** our prices to be as **LOW** as the **SAME QUALITY** of a **GENUINE** article can be had anywhere.

We call special attention to our immense stock of
Martha (White Concord) **and Black Hawk Grapes.**
Jucunda (new, No. 700), **Fillmore** and **Triomphe de Gora Strawberries.**
Naomi, Hornet, Clarke and **Philadelphia Raspberries.**
Kittatinny Blackberry.
American Seedling Gooseberry.
Versaillaise, Fertile d'Angers Cherry.
White Grape and **Victoria Currants,** and all other desirable varieties of SMALL FRUITS.

Our Descriptive Illustrated Catalogue of 52 Pages,

containing much valuable information in Small Fruit Culture, will be sent to all applicants, enclosing 10 cents. Price List, of 20 pages, for Spring of 1870, **SENT FREE.**

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Box 155, Pittsburgh, Pa.

BY MAIL.

A Complete Assortment of Grapes, Strawberries, Raspberries, Blackberries, Gooseberries, and Currants.

Our offers of Vines and Plants by mail this season, are the most liberal we have ever made. All articles sent out will be: 1st. All No. 1.—2d. Carefully marked.—3d. Safely Packed.—4th. Post-paid.—5th. Their Safe Carriage guaranteed.—6th. Accompanying each Package there will be printed instructions for their management and cultivation.

Price List for Spring of 1870 sent **FREE** to all applicants.

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On 2 or 10 Years Credit.

Missouri Lands are very fertile and situated in the heart of the Union.

North Missouri contains about 16,000,000 acres as desirable as any in the Mississippi Valley. Through this Garden of Missouri the Hannibal & St. Joseph Railroad extends, and all its lands lie near its track and numerous depots. The climate, so temperate and healthful, and a virgin soil so capable of producing almost every kind of vegetation, invite emigrants to settle on our Prairies. Circulars, giving full and valuable particulars are supplied gratis to all wishing to go themselves, or to circulate to induce their friends to go also.

A Sectional Map showing exact location of all our Railroad lands is sold at thirty cents.

Address LAND COMMISSIONER,
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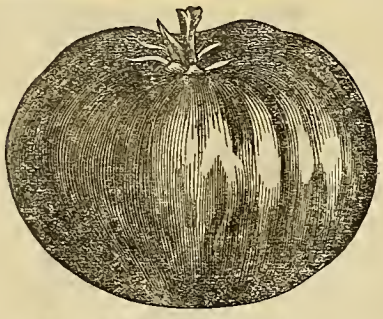
FARM & GARDEN Implements.

Rotary Harrows; Monroe's Patent, price $25. Nishwitz Patent Pulverizing Harrow, price $30. Shares' Patent Harrow and Pulverizer, with cast-iron or steel teeth. Send for Circulars of the above, and also for the Copper Strip Feed Cutter to J. R. DECATUR & CO., Manufacturers and Dealers in Seeds, 197 Water Street New York.

SECURE A HOME.—The best Fruit and Garden lands for sale, in a mild and healthful climate, 30 miles from Philadelphia. Good Markets and Society. Pure soft water. Price, 30 dollars per acre, payable ¼ cash, balance in 10 years. A rare opportunity. Thousands are settling.
Address R. J. BYRNES, Haumonton, N. J.



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The Unrivalled Prize, "Gen. Grant."

This Tomato introduced by us last season, has again proved the best in all respects, taking for the third season the first and second prizes at the Mass. Hort'l Soc. Exhibitions, in competition with all the leading sorts. We have received numerous testimonials from all quarters, but for want of space are obliged to omit publishing them. Price, post-paid, per packet, 25 cents.

EARLY WYMAN CABBAGE.

Introduced by us. The best and most profitable early market-cabbage grown. It heads early, is of large size and first quality, and brings the highest price of any early cabbage brought into the Boston market, selling readily last season by the thousand, at $18 per hundred. It took the first prize at the last and several previous exhibitions of the Mass. Hort. Soc. Per packet, post-paid, 25 cents.

For further descriptions and a beautiful colored Lithograph of above Cabbage, see Jan. No. Agriculturist, page 21, or

Twenty-fourth Edition of this popular work, which has met with so much favor in the past, is now ready. It has been re-written and improved, printed with new type, and on fine paper; illustrated with a beautiful Lithograph, and many other fine engravings from nature. It contains full description and the culture of over 1,500 leading varieties of Flowers and Vegetables; also descriptive list of the novelties of the present season; to which is added a collection of 200 choice French Hybrid Gladiolus. This work, we feel confident, will compare favorably with any similar one.

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"I have received a copy of your superbly gotten-up Amateur Cultivator's Guide. I think it far ahead of anything of the kind ever before issued from the American press."

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Three Best Squashes!

The Hubbard is the sweetest, dryest, and richest table squash for winter, the *American* Turban for fall, and the Boston Marrow the best pie squash. Seed sent post-paid to any address, at 10 cents a package; Hubbard and Turban 25 cents an ounce, and Boston Marrow 20 cents an ounce. I take pride in having been the original introducer of the Hubbard squash. My Illustrated Catalogue of Garden and Flower seed sent gratis to all.

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THE CASABA MELON.

"One of the specimens weighed twelve pounds; and if there is a more sugary, tender-fleshed, and altogether good melon than this, we would like to see it."—*Editors American Agriculturist, Oct., 1868.*

"Every one who ate of them have pronounced them the finest melons they ever tasted; they weighed from ten to sixteen pounds each. They suffered less from drought than any melons on the farm."—J. M. Phillips, Newtown, Md.

"I am especially pleased with the Casaba Melon on my ground; they have borne abundantly, are of very large size, and superior quality."—T. C. Wallace, M. D., Cambridge, N. Y.

"The earlier years of my life, which I spent in Constantinople, Turkey, in the midst of the profuse abundance of melons, which used to overstock the market of that city, we would now and then come across the Casaba. It was a luxury, not solely for its rarity in that market, but for its own size and excellence; though as large as the largest watermelon, it was also of really exquisite flavor. The cause of its rarity was stated to be the fact that it would not grow in excellence except in the province of Casaba, in Asia Minor."—*Extract from a letter from W. D. Dwight, Principal of the West Point School.*

This melon can be grown quite as easily as any of the other varieties of muskmelon.

The seed for sale in sealed packets. 25 cents each, or six for $1; also the following superior varieties:

California Golden Orange,	¼ pkt.,	10 c.;	¼ oz. 20c.;	¼ lb.,	$2.50
Turks-cap, extra,	"	10	"	20	"	1.50
Pineapple,	"	10	"	20	"	1.25
Water melon Mo'nt'n Sweet			"	10	"	1.00

By Mail, at above prices. For other varieties, see Dreer's Garden Calendar for 1870, mailed on receipt of a stamp.

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True Broad-leaved Sage Seed, grown by the famous Danvers growers who raise Sage by the acre. *Warranted growth of 1869.* Price—10 cts. per package; 35 cts. per oz.; $1 per ¼ lb.; $3.50 per lb. *Sent by mail, post-paid, with full directions for cultivation. Catalogues free.*

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JAMES J. H. GREGORY, Marblehead, Mass.

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GARDEN & FLOWER SEEDS

Sent by mail, *postage paid.* Send for priced Catalogue.

Farm & Garden Implements, and Fertilizers,

Of every variety, at *very low prices.*

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EARLY WYMAN CABBAGE.—The earliest Boston Market variety. Per packet, 25 cents, mailed.

IMPROVED EARLY PARIS CAULIFLOWER.—One of the finest grown by the Market Gardeners about Boston. 25 cents per packet, mailed.

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EVERGREEN PODDED BEANS, a new variety of pole beans from the Pacific Coast. As a string-bean, and for pickling, we consider it one of the best recently tested. Per packet, 25 cents, mailed.

SURPRISE OATS, ripen three weeks earlier than any other variety, and weigh forty-five pounds to a measured bushel. For full description we refer to our New Catalogue. Stock limited. 50 cents per quart, postage paid.

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New Illustrated Seed Catalogue,

and

Flower & Kitchen Garden Directory.

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BOSTON MARKET CELERY.

I can supply best seed of the genuine Boston Market Celery, the variety described on page 420 of the Nov. (1869) Agriculturist. Per package, 15 cts.; per ounce, 50 cts.; by mail, post-paid. *Catalogues free.*

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BEAUTIFUL FLOWERS AND CHOICE VEGETABLES.

My NEW ILLUSTRATED CATALOGUE OF CHOICE FLOWER AND VEGETABLE SEEDS for 1870, is published and ready to send out. It contains a list of nearly everything desirable in the Flower and Vegetable Garden. All the best varieties of Beans, Beets, Cabbage, Cucumbers, Melons, Radish, etc., etc., 15 varieties of Tomatoes, embracing several new sorts. Read my advertisement about NEW TOMATOES in the Agriculturist for February, page 70. The three varieties described there will be sent for 35 cents; *not 50 cents*, as the printers made it read. My Catalogue tells how to get the Agriculturist, Our Young Folks, The Childrens' Hour, Arthur's Home Magazine, The Independent, Phrenological Journal, and several other valuable Magazines, *at the lowest Club price.* Catalogue mailed free to all who apply.

Address J. F. MENDENHALL, Carmel, Ind.

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CHOICE FLOWER SEEDS, NEW SEED POTATOES, AND SEED OATS, ETC.,

By Mail, to any Post-office in the United States. "Our Illustrated Descriptive Priced Catalogue for 1870, is issued, and will be mailed to any address on receipt of 10 cents.

EDW'D. J. EVANS & CO., York, Pa.

Conover's Colossal Asparagus!

SPLENDID ROOTS!

Grown singly in drills in rich soil and with good culture. One year old. $3 per 100; $25 per 1,000.

Send for Circular. R. M. WELLES,
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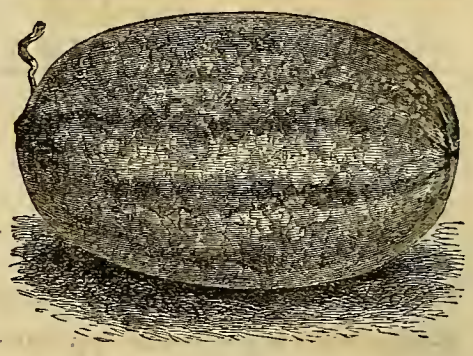

Phinney's Early Water-Melon, per packet.....25 cents.
Rising Sun Tomato, " " .....25 "
Early Wyman Cabbage, " " .....25 "
Conover's Colossal Asparagus Seed, per packet....50 "
Early Wakefield Cabbage, per ounce.....$1.00
Fine roots of Conover's Colossal Asparagus, at $3.00 per hundred.

Our New Seed Catalogue, containing the names and prices of all the **New Vegetable and Field Seeds**, with a description of the same, is ready for mailing to all applicants. Address

R. H. ALLEN & CO., P. O. Box 876,
189 & 191 Water Street, New York.

Fresh Garden, Flower, Fruit, *Herb, Tree, Shrub* and *Evergreen Seeds* (25 sorts of either, $1.00) prepaid by mail. Agents wanted.

Priced Catalogues gratis. Trade List. Seeds on commission. Small Fruits. Fresh Onion Seed, $4 per lb.

B. M. WATSON,
Old Colony Nurseries and Seed Warehouse,
Established 1842. Plymouth, Mass.

PURE CANE SEED.

This Seed, grown under our own observation, is PURE and TRUE to the varieties named. The cane producing it having yielded 200 to 300 gallons syrup per acre.

Our Regular Sorgho is a FRESH IMPORTATION FROM THE MOUTH OF THE YANG-TSE-KIANG, the best cane-growing section in China, and has been carefully cultivated one season specially for us.

Liberian, by mail, 40 cts. per lb.; by Express, 25 lbs. or less, 25 cts. per lb.; over 25 lbs., 15 cts. per lb. Regular Sorgho, Oomseeana, Neeazana, by mail, 50 cts. per lb.; by Express, 25 lbs. or less, 20 cts. per lb.; over 25 lbs., 20 cts. per lb.

Packages included. Send for Circular.

BLYMYER, NORTON & CO.,
Manufacturers of Cincinnati, O.
VICTOR CANE MILL and COOK'S EVAPORATOR.

Alsike Clover.

Fine for mowing and pasturage, or for bees. Price 10 cts. per oz.; 75 cts. per lb., by mail, post-paid; also $7 per peck, and $25 per bushel of 60 lbs., by Express. *Catalogues free.*

JAMES J. H. GREGORY, Marblehead, Mass.

New Tomatoes.

ALGER.—This new variety has the same potato-like foliage as Keyes', but the fruit is larger, of good market size, early and very productive. 15 cts. per package.

GEN. GRANT.—Remarkably solid, round, flat in shape, handsome, and of excellent quality. Received the first premium for the two past years at the Annual Exhibition of the Mass. Hort. Society. 15 cents per package.

CRIMSON CLUSTER.—Early, grows in large clusters bearing handsome fruit, oftentimes elegantly spotted with gold, 15 cents per package.

MAMMOTH CLUSTER.—Very large, round, crimson, 15 cents per package.

BOSTON MARKET.—The result of most careful selection by the Boston market-men for a series of years; large, flat, round, solid; enormously productive, 15 cts. per package.

EARLY ORANGEFIELD.—An English sort, yields its fruit in large clusters. This Tomato is of a peculiarly rich and sweet flavor, and excellent as fruit for dessert, 15 cts. per package.

Also the following excellent varieties at 10 cts. per package. Early York, Dwarf Scotch, Keyes' Early Prolific, Yellow Fig, Maupay's Superior, Cherry, Large Yellow, Feejee, Cook's Favorite, Lester's Perfected, Large Smooth Red, Tomato De Laye, Tilden, New Mexican, Strawberry, or Ground Cherry.

All of the above are of my own raising, each grown isolated, scattered over three square miles of territory. Catalogues free.

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SANFORD CORN.

The experience of the past season fully confirms all that has been said in its favor. In many instances, being planted in the same field and having in all respects the same chance, *it has ripened from two to three weeks earlier, and yielded double the amount of other corn.* Testimonials from reliable farmers in nearly every State endorse it as being *the best field corn.* One quart by mail post-paid, 75c. Two quarts, $1.25. One peck, $3. One peck by Express, $2. One bushel, $5. Send for Descriptive Circular. Address

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The seeds contained in the above assortments are of our own selection. Purchasers who prefer to make their selection from the Catalogue will be entitled to a discount proportionate to the quantity ordered.

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No pains or expense have been spared in preparing this edition, to make it the most complete work of the kind ever published in this country.

It contains 120 pages of closely printed matter, and *two hundred* choice engravings of favorite Flowers and Vegetables—a large portion of which are entirely new; also, two beautifully colored lithographs of **Lilium Auratum** and a **group of Pansies, and a descriptive list of upwards** of *two thousand* species and varieties of *Flower* and *Vegetable Seeds*, including all the novelties of the past season, with directions for their culture; also, a list of upwards of *One Hundred varieties of Choice Gladiolus*—with many other Summer-Flowering Bulbs—and much useful information upon the subject of gardening generally.

A copy will be mailed to all applicants enclosing *Twenty-five cents.* Our regular customers supplied without charge.

Address **B. K. BLISS & SON,**
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Cabbages worth Growing.

The following embraces the very best varieties in cultivation for a succession. Mailed to any address upon receipt of price.

	pkt.	*oz.*	*¼ lb.*	*pound.*
Early Wyman	25	$2.00	$6.00	$18.00
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Early Winningstadt	10	40	1.25	4.00
Large Early Schwetaturt	15	1.00	3.50	10.00
Fottler's Improved Brunswick	15	75	2.50	7.00
Stone Mason Drumhead	10	40	1.25	4.00
Premium Flat Dutch	10	40	1.25	4.00
Improved American Savoy	10	40	1.25	4.00
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One packet each of the above 12 varieties, $1.25.
One ounce " " " " 6.25.

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P. O. Box 5,712, New York.

Lilium Auratum.

The Japanese Queen of Lilies.

A large importation from Japan, just received by the subscribers, in fine, healthy condition. Flowering Bulbs mailed to any address at following prices:

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This superior variety is the result of a careful selection, for successive years, of the best formed, largest, and deepest-colored roots of the Imported Long Orange Carrot, by which it has attained a perfection hitherto unknown in this useful vegetable, being larger, better flavored, and of a deeper orange color, and more sure to produce a crop. Butter makers will find this variety very useful in giving to their butter a rich, deep yellow color. We unhesitatingly pronounce it the best variety in the market, and one which will not fail to give satisfaction to the purchaser. 1 oz., 20 cts.; 4 oz., 65 cts.; 1 pound, $2, by Mail, post-paid.

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Grown expressly for us the past season by some of the most successful growers in Wethersfield, Conn., and vicinity, the quality of which cannot be excelled. Mailed post-paid to any address upon receipt of price affixed.

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White Portugal	50	1.50	5.00
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Address B. K. BLISS & SON,
Nos. 41 Park Row & 151 Nassau St., New York.

SEED POTATOES.

BRESEE'S KING OF THE EARLIES, or No. 4.—Known also as the *Fifty Dollar Potato* (at which price they were sold last spring). The experience of the past season fully confirms all that was claimed for it by the raiser, and we have no hesitation in pronouncing it the *Earliest*, as well as one of the best varieties in cultivation, is ready for marketing one week in advance of the Early Rose. Mr. Bresee has placed his entire stock in our hands, for sale at the following greatly reduced prices.

Two Pounds, by mail, post-paid, for $1.00; by Express, (purchaser paying freight), One Peck, $5.00; One Bushel, $15.00; One Bbl., $40.00.

BRESEE'S PEERLESS, or No. 6.—This is, without exception, the best variety in cultivation, for a general crop. It grows to a large size, of a very showy appearance, is enormously productive, and fully equal to the Peachblow in quality. The stock was sold last spring at $600 per bushel. One lb., by mail, $1.00; by Express, $10.00 per peck.

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CLIMAX.—4 lbs., by mail, $1.00; $1.50 per peck; $4.00 per bushel; $9.00 per Bbl.

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Not less than $1.00 worth of a variety will be mailed.

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Used in the Imperial Nurseries and Plantations of Paris.

This preparation is known as the best which can be used in the operation of grafting Trees, Shrubs, and Plants of any description, budding Roses, &c. It requires no previous melting; it is always ready for use; it grows hard in the open air as well as in water; and once hardened is not liquified under a high temperature.

This article is far superior to anything yet produced for the purpose of healing all wounds in Trees, &c., arising from accident or disease. It rapidly causes broken or split branches to unite again; it preserves the graft from moisture and from the intrusion of insects, &c., and is

THE BEST STYPTIC TO PREVENT THE EFFUSION OF SAP AFTER THE PRUNING OF THE GRAPE-VINE.

It is also an indispensable article in many other circumstances, which can only be illustrated by its use. Sold in tin boxes of various sizes, bearing the signature of the inventor. Price 40c., $1.25 and $3.50 per tin. The largest contains 6¾ lbs.

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B. K. BLISS & SON, 41 Park Row, New York,
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CUCUMBER, GEN. GRANT.

A superior variety, either for forcing or for culture in the open round. It is perfect in form, solid and crisp, and of a most agreeable flavor. Many specimens were grown the past season averaging thirty inches in length. After a five years' trial, we unhesitatingly pronounce it better than any other variety for forcing.

Packets, containing 10 seeds, 25 cents. Five Packets for $1.00. B. K. BLISS & SON,
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Conover's COLOSSAL ASPARAGUS

Seed and Roots.

The experience of the past season fully confirms all that was claimed for this variety when first offered last spring, and it now stands unrivaled in size, productiveness, and quality.

Specimens were exhibited the past season by Mr. Conover, which were grown alongside the best "Oyster Bay" varieties, and received the same care and treatment, which attained four times the size of that popular variety.

Though but two years from the seed, many of the plants produced from twenty to thirty sprouts, averaging from two to four inches in circumference, and were ready for cutting one year in advance of the ordinary varieties. Strong, one-year-old Roots mailed, post-paid, $2 per fifty; $3.00 per hundred.

SEEDS.—½ oz. per pkt. 50 cts.

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41 Park Row, & 151 Nassau St., New York.

Fresh Pear Seed.

In first-rate condition, just received by the subscribers, 40 cts. per ounce, $1.25 per 4 ounces, $4.00 per pound, $325.00 per 100 pounds.

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UNION PACIFIC RAILROAD COMPANY.

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The Lands now offered by this Company are situated mainly within twenty miles on each side of the road, extending one hundred and seventy miles along the

NEOSHO VALLEY, the richest, finest, and most inviting valley for settlement in the West. The Lands are admirably adapted to fruit and vine culture, stock raising, and dairy business. They consist of rich bottoms, level, undulating, and rolling prairie, usually convenient to wood and stone, spring, creek, or river water.

Interspersed among cultivated tracts and lying in large bodies together, they present inducements to families, neighborhood settlements, and large colonies, possessed by no other lands in the State. While the lands of similar corporations have been *culled* by the two hundred thousand settlers of the last two years, these have been rigidly reserved intact, and now are open to the actual hard-working settler—the bone and sinew of the nation.

One-third of the labor required at the East in the culture of farms will insure here double the amount of crops. The high rolling prairie is the finest wheat land in the world, and when plowed deeply, stands a drought, and produces corn nearly as well as the best of our bottom-lands. For orchards, grape culture, and small fruit in general, it is far superior, and is least affected by frosts.

BUILDING MATERIAL AND FENCING.—The varieties of timber are Cotton-wood, Hackberry, Locust, Oak, Hickory, and Black-Walnut, situated mostly on the large rivers and creeks, and hid away in ravines, unobservant to the common traveler. Within convenient distance of almost every quarter section, are the finest quarries of limestone, furnishing the best of material for house, barn, fences, etc. Large quantities of pine lumber are imported by way of Leavenworth, and as soon as our road reaches the pineries of the Indian Territory and Texas, it will be brought up the valley of the Neosho.

STOCK RAISING.—The rich native grasses of the prairies and bottoms, with the large area of unoccupied lands in connection with the dry, mild, and open winters, present unequaled advantages for the raising of cattle, sheep, and horses.

One of our correspondents, a Kentuckian, in a letter just received, says: "I examined Labette and Neosho Counties last winter, and I consider the region of your Land Grants to be the very centre of the live-stock trade in this part of the continent. It is a region better adapted to the growth of live-stock, and the making of butter and cheese, than any other in the same latitude. Its limestone soil in time, will be the best Blue Grass land in the world."

DAIRYING.—In such a country, with ranges for stock unrestricted, and pasture limitless, the production of butter and cheese must be profitable. The cheapness with which cattle can be raised and fed, leaves this branch of labor without any drawbacks, and insures handsome returns and liberal profits to all who engage in the dairying business.

FRUIT GROWING is one of the *specialties*, as demonstrated by the Gold Medal awarded to the State of Kansas by the Pennsylvania State Horticultural Society for "A COLLECTION OF FRUITS UNSURPASSED FOR SIZE, BEAUTY, AND FLAVOR." The pear and apple crop of 1869 gives positive assurance of success in this department.

THE CLIMATE AND HEALTH of Kansas are unequaled. These, indeed, are among its chief excellencies, and are recommendations for settlement. The atmosphere is dry and pure, and singularly beneficial to persons predisposed to consumption and bronchial affections. No country in the world furnishes a larger number of days in the year in which out-door work can be done.

COAL AND SALT.—Numerous veins of excellent coal have been opened in the Valley, and in many other parts of the State, varying all the way from 1 to 6 feet in thickness.

SCHOOLS AND CHURCHES.—The Common and Higher Schools of the State are endowed with lands to the value of millions of dollars, a portion of which have been sold and invested, yielding a heavy income. Churches of all denominations are common, and liberally supported and attended.

PRICES OF LAND.—Our lands vary in price, usually from $3 to $8 per acre, and are sold upon the credit of (10) years' time, and on more favorable terms than any other company in the State. It is our purpose to prevent, as far as possible, any speculating in the lands of this Company, and to encourage sales to *actual settlers* alone;

TERMS OF SALE.—One-tenth down at time of purchase. No payment the second year, except the interest. One-tenth every year after until completion of payments, with annual interest. Any one wishing to save the interest can have the privilege of paying up at any time.

THE HEAD LAND OFFICE is located at JUNCTION CITY, to which all immigrants and persons desiring to see the lands of this Company should purchase tickets. Large maps of the road and the lands can be seen, and important information gained, not possessed at any other point, and to all purchasers of lands *free tickets* from this point are given over the Road.

For further information address

ISAAC T. GOODNOW,
Land Commissioner,
Junction City, Kansas.

THE

EUMELAN

GRAPE.

A FEW WORDS TO THE PUBLIC.

We are in receipt of hundreds of letters asking many different questions in reference to the merits of the Eumelan grape; some of the more common of which we desire to answer through the advertising columns of the American Agriculturist, for the benefit of all who read this journal, and are desirous to learn of the worth of this variety which, though new to the public, has been growing and producing fruit for many years.

Ques. Where, when, and with whom did the Eumelan originate? *Ans.* At Fishkill, on the Hudson, about thirty years since, in the grounds of a Mr. Thorne.

Ques. Is the Eumelan an early grape? *Ans.* Yes, the earliest of all the valuable sorts, ripening some days in advance of the Hartford Prolific, and more than two weeks sooner than Delaware.

Ques. Is the Eumelan a hardy variety? *Ans.* One of the most hardy. The vines have withstood the winters of the past 25 years in bleak exposure without protection, and more recently have proved hardy where tried in every Northern State, from Maine to Minnesota. *Ques.* Are the vines vigorous? *Ans.* We have found the Eumelan to be as vigorous as Concord; and such is the report from all who have tested it.

Ques. What is the color of the Eumelan? *Ans.* Black with a peculiar wax-like bluish bloom, making it our handsomest black variety.

Ques. Have Eumelan grapes been grown elsewhere than at Fishkill? *Ans.* Yes; in many places where the vines have been tried, and always possessing the same great superiority over other black varieties that it has been found to possess when grown at Fishkill. *Ques.* Is the stock of vines you are now offering for sale grown from mature wood, or is it grown from green cuttings and immature wood? *Ans.* Our stock of Eumelan vines is grown from well-ripened wood, taken from bearing vines, and the plants we are selling are strong and well rooted, so that we can warrant every one we send out to give satisfaction to the purchaser.

The above and many other inquiries are fully answered in our pamphlet, containing thirty years history of this most valuable grape; also, testimonials from persons in all parts of the country where the vines have been on trial.

We will send the pamphlet free to any person giving us their address.

THE AMERICAN AGRICULTURIST says:

"We are convinced that this grape is worthy of general trial, and we shall take much interest in seeing its true merits developed."

THE RURAL NEW YORKER says:

"The Eumelan promises to deserve a prominent place in American vineyards."

THE NEW YORK TRIBUNE SAYS:

"The Eumelan must be considered, from present evidence, to be a valuable addition to our list of grapes."

ONE WORD FOR THE QUALITY OF OUR VINES.

Palmyra, N. Y., Nov. 11, 1869.

Messrs. Hasbrouck & Bushnell.—Gents: The box of Eumelan vines is received. The One Hundred No. 1 are as fine one-year-old vines as I ever saw. Can't help but give my customers best satisfaction. The second and third class are also very fine. The second class are as good, and, in fact, better, than many first-class one-year-old grape-vines I have received from many other sources.

Truly yours, A. M. PURDY.

ONE WORD FOR THE FRUIT OF THE EUMELAN.

Reading, Mass., Sept. 30, 1869.

Messrs. Hasbrouck & Bushnell:—My Eumelan vine is a vigorous, almost rampant, grower. Leaves, dark, thick, and parchment like, while the wood is hard, and very short jointed. Thus far, I have not one among my fifty or sixty varieties which (all things considered) has pleased me so much as the Eumelan. My vines have been entirely healthy, and the fruit of the Eumelan ripened this year fully one week in advance of the Hartford. In quality, it deserves to be placed *at the head* of the black grapes.

Respectfully yours, REV. WM. H. WILLCOX.

Send for price list of Vines, also terms to Clubs.

Address

HASBROUCK & BUSHNELL,
Iona, near Peekskill,
Westchester Co., N. Y.

Marblehead Mammoth Cabbage!

This is the largest cabbage in the world, sometimes weighing over sixty pounds each, and averaging as high as thirty pounds by the acre! It is not only large, but cannot be surpassed for reliability for heading, tenderness, and sweetness. As some cultivators have an impression that this cabbage cannot be fully matured outside of Marblehead, I invite their attention to the following extracts from among the many commendatory letters which I have received.

"Your Marblehead Mammoth Cabbage cannot be excelled. There were heads weighing 50 lbs., and heads of Fottler's Improved Brunswick (from your seed) weighing 40 lbs.—John H. Howlett, Charlestown, Ill."

"I raised from your seed Marblehead Mammoth Cabbages that weighed 50 lbs.—A. H. Mace, Clintonville, N. Y., Nov. 14th, 1869."

"Your Marblehead Mammoth Cabbages were very fine, they all headed well, and weighed 27 to 40, and 47 lbs.—W. Llewellyn, Red Wing, Minn., March 12, 1869."

"Your Marblehead Mammoth Cabbages are wonderful; they grew to the size of an umbrella.—Thomas Flanigan, Palermo, Kansas."

"The Marblehead Mammoth Cabbages were a perfect success. They headed well, and were three times as large as any cabbage I ever raised before.—J. F. Butt, Kosciusco, Miss."

"I have raised your Marblehead Mammoth Cabbage for two years, and it has proved the tenderest and sweetest cabbage I ever saw.—S. S. Groves, Stones Prairie, Ill."

John Van Wormer, Springs' Mills, Mich., raised some weighing 30 lbs. John Humphreys, Titusville, N. Y., 33½ lbs. M. D. Clark, Elyria, Ohio, 37 lbs. H. A. Terry, Crescent City, Iowa, 40 lbs., measuring 56 inches around the solid head. Thos. A. Lambert, Becancour, C. W., exhibited three cabbages weighing respectively 40, 42½, and 44 lbs. John W. Dean, St. Michael's, Md., has grown them weighing 33 lbs. S. M. Shuck, Preston, Minn., 33 lbs., when trimmed. E. H. Ellis, Etna Green, Ind., over 30 lbs. A. E. Garrison, Des Moines, Iowa, 30 lbs. James S. Allen, Union Springs, N. Y., 30 lbs., when stripped of loose leaves. Wm. Lee, Jr., Denver, Colorado, has grown heads weighing 45 to 50 lbs., as a penalty for which the miners of the mountains call him the "Big Cabbage Man." Leonard Choat, Denver, Colorado, raised one which weighed 46 lbs. when trimmed of waste leaves. Collins Eaton, Ogdensburgh, N. Y., 50 lbs. P. Sweeney, Loretto, Pa., 43 lbs. Sam'l B. Ornsbee, Rolling Prairie, Wis., 53 lbs. Chas. W. Oden, Little Sioux, Iowa, produced quite a lot weighing from 50 to 60 lbs. A. C. Van Tassal, 29 lbs. trimmed. A. C. Goodwin, Kennedy, N. Y., 45 to 50 lbs. W. H. Spera, Euphrata, Pa., raised fifty heads that averaged over 31 lbs. each. Wm. D. Munson, Burlington, Vt., raised some weighing 46 lbs. Mary B. Sellman, Galesburg, Iowa, 28 to 43 lbs. stripped of loose leaves. Hundreds of others have written me that they have "taken all the prizes at the County Fairs." "Raised the largest cabbage ever seen in the country." "Astonished all their neighbors." "That in sweetness, crispness, and tenderness, they were unequalled," etc., etc. As the original introducer of the Mammoth Cabbage, I am prepared to supply seed grown from *extra large heads*, at following prices, by mail, post-paid: Per package, 25 cts.; per oz., $1; 4 ozs., $3.50; per lb., $12.

Full instructions for cultivation accompanying the seed.

Catalogues free. JAMES J. H. GREGORY,
Marblehead, Mass.

FERRE, BATCHELDER & CO.'S
ILLUSTRATED CATALOGUE
of Seeds and
VEGETABLE AND FLOWER GARDEN

MANUAL for 1870, will be ready for distribution early in January. It will contain about 100 pages, with numerous illustrations—a complete list of Vegetable and Flower seeds, to which will be added a list of **Summer-Flowering Bulbs, Plants and Small Fruits.** Sent to all applicants **enclosing 10** cents. Our customers supplied without charge. Address

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231 Main St., Springfield, Mass.

To Market Gardeners.

Your business involves an immense outlay over small areas, and it is of first importance that the seed you plant should be *fully reliable*. My enterprise is of special interest to you, as I am engaged in growing, directly under my own eye, a great variety of vegetable seeds, many of which seedsmen usually import or gather together from growers scattered through the country. Because I grow these seed myself I am enabled to warrant them *fresh and true to name*, and to bind myself to refill the same value gratis, should they not prove so. All seed warranted to reach each purchaser. I also import and procure from first growers, choice varieties that cannot be grown in my locality, giving me thus one of the largest if not *the* largest variety of vegetable seed sold by any dealer in the United States. Give my seed a trial. Catalogues gratis.

JAMES J. H. GREGORY, Marblehead, Mass.

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We buy and sell for cash—	**Macy** has it.
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Hosiery, Gloves, Underwear,	**Macy** has it.
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All at popular prices—	**Macy** always has it.

Cash orders, by Mail, or Express.

R. H. MACY, 14th St. & 6th Ave., New York.

European Larch Seed (*Larix Europæa*).

A supply of *Fresh Seed* just received by the subscribers, and mailed post-paid to any address at following prices: 1 oz., 25 cts.; ¼ lb., 75 cts.; 1 lb., $2.50.

Address B. K. BLISS & SON.
P. O. Box No. 5712, New York.

A 310-ACRE FARM FOR SALE—2½ miles from Greensboro Station, Maryland & Delaware Railroad. Price $25 per acre, $2,000 Cash; balance one and two years. For particulars address P. O. BOX 24,
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Gardening for Profit & Practical Horticulture

By Peter Henderson

The former, detailing the systems of Market Gardening
the latter descriptive of the modes of Commercial Floriculture
as practised in the vicinity of New-York.

Mailed, post-paid for $1.50 each

Our Illustrated Catalogue of Seeds and Implements together with that of New and Rare Plants, are now ready, and both will be mailed on receipt of 25 cts. or sent with either of the above books, free of charge.

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Seedsmen, Market Gardeners & Florists
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Green Houses
Bergen City
N. J.

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FOR MARKET OR PRIVATE GARDENS,

Of such kinds and qualities as we use in our Market Gardens at Bergen City, New Jersey.

	per oz.	per lb.
Asparagus, Giant	$ 10c.	$ 75
" Conover's Colossal	1.00	12.00
Beets, Early Bassano, and Short Top Round	20c.	2.00
" Pine-Apple, 30c. oz., $3 lb. Long Blood.	15c.	1.50
Cabbage, (Early) Jersey Wakefield (*true*)	1.00	12.00
" Oxheart, Winningstadt, Dutch, and Large York	30c.	3.00
" (Late) Flat Dutch, and Bergen	30c.	3.00
Drumhead, and Stone Mason	30c.	3.00
Carrot, Early Horn, and Long Orange	15c.	1.50
Cauliflower, Early Paris, and Nonpareil	1.50	20.00
Celery, New Dwarf White, Henderson's	50c.	5.00
" White and Red Solid	40c.	4.00
Cucumber, White Spine, Cluster, Long		
" Green, and Early Frame	15c.	1.50
Egg Plant, N. Y. Improved Large Purple	75c.	8.00
Lettuce, Simpson, Butter, and India	40c.	4.00
Melon, (Musk), Citron, Nutmeg, & Skillman's	20c.	1.50
" (Water), Ice Cream, and Long Island	15c.	1.50
Okra, Tall and Dwarf	10c.	1.00
Onion, Large Red, Yellow, and White	50c.	5.00
Parsley, Extra Dwarf Curled	15c.	1.50
Pumpkin, Cheese, and Connecticut Field	10c.	75
Radish, Scarlet Turnip, and Long Scarlet.	10c.	1.00
Rhubarb, Victoria and Linnæus	30c.	3.00
Salsify, or Oyster Plant	40c.	4.00
Spinach, Round and Prickly	10c.	75
Squash, Early Bush, and Crookneck	10c.	1.25
" (Late) Boston Marrow, and Hubbard	25c.	2.50
Tomato, Early Smooth Red, and Fejee	40c.	4.00
" New York Market	40c.	4.00
Turnip, Red Top, White Dutch, Yellow Aberdeen, and Yellow Globe	10c.	75
Herbs, Thyme, and Sweet Marjoram	60c.	6.00
" Sage, and Summer Savory	30c.	3.00

	per quart.	per bush.
Beans, (Bush), Valentine, Refugee, Mohawk, and China	$ 40c.	$ 7.00
" (Pole), London Horticultural, and Red Cranberry	50c.	12.00
" Large White Lima	60c.	14.00
Corn, Dwf. Prolific, Asylum, and Evergreen	20c.	6.00
Peas, (Early), Dan'l O'Rourke, Extra Early	30c.	6.00
" Little Gem, 60c. per quart. Advancer	50c.	12.00
" (Second crop), Champion, Napoleon, and Blue Imperial	40c.	9.00

Peas, Beans, and Corn, 10c. per quart extra by mail.

NEW TOMATOES.

Rising Sun, per packet, 25 cents.
Chorlton's Prolific, per packet, 25 cents.
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Onion Sets, Yellow	50c.	$10.00
" " White	75c.	12.00

Asparagus Roots, (2 year old), $10.00 per 1,000.
" " Conover's Colossal, $3 per 100; $25 per 1,000
Rhubarb, Victoria and Linnæus, $3 per doz.; $15 per 100.
Horse-radish Sets, 75c. per 100; $6.00 per 1,000.
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Carnations, 12 sorts, 30 cents each, $2 per dozen.
Pinks, 12 sorts, 30 cents each, $2 per dozen.
Chrysanthemums, 12 sorts, 30 cents each, $2 per dozen.
Clematis, 6 sorts, 50 cents each, $4.50 per dozen.
Fuchsias, 12 sorts, 30 cents each, $2 per dozen.
Geraniums, Zonale, 12 sorts, 20 cents each, $2 per dozen.
Geraniums, variegated, 12 sorts, 30 cents each, $2 per dozen.
Geraniums, scented, 8 sorts, 30 cents each, $3 per dozen.
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ORNAMENTAL FOLIAGED

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Read carefully Advt. of WOLF CREEK NURSERY, page 115.

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These Seeds are much larger, and plumper than any seeds of the same varieties grown in the Atlantic States. They are raised nearly as far North as Montreal, Canada, and by reason of the *long cool* summers and *slow growth*, obtain a perfection and beauty of size seldom reached elsewhere. Marblehead Mammoth Cabbage, Flat Dutch, Drumhead, Winningstadt, and all the leading varieties of garden seeds, for sale by O. DICKINSON, of the Salem Seed Gardens, Salem, Oregon. Prices, that of Seedsmen, generally.
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	Per 4 lbs.	Per peck.	Per bu.	Per bbl.	Ten bbls.
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The Original Introducer.
Send for circular containing description testimonials, price list, etc., to HENRY C. MERRILL (Agent), Manchester, N. H.
Circular free to all.

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Freedom Station, Portage Co., O.

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Seed obtained in the spring, 1868, of D. W. Ramsdell's Agent, H. C. Pease, Vt. Warranted genuine. Single bush., $3; 2½ bush., $7; 5 bush., $12.50; 10 bush. and over, $2 per bush. Sent by freight or Express, purchaser paying charges. Bags free. Address A. NIESE, Port Ewen, Ulster Co., N. Y.

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50 acres in Raspberries.
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A limited stock of Kentucky Strawberries.
Send early for Catalogues.

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30,000 3 Year E. May and other Cherries.
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By Express or freight (our option) to any point within 1,200 miles reached by rail or steamer:
100 No. 1 Peach, 4 to 5 ft., best varieties, for $15.
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50 Peach and 50 Cherry, in one lot, at above rates.
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Strawberries, Raspberries, and Blackberries. All A No. 1 stock, at bottom rates. Price lists free. Address
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Apply to J. W. CONE,
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500,000 Grape-vines, 2,000,000 Cuttings!

Of all the leading varieties; the best and cheapest in America. Also, Small Fruit Plants. For large orders will take in exchange No. 1 Western Lands at Cash value.
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Send to head quarters for strong, genuine plants.
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Extra plants, $10 per 100; $70 per 1,000. Send 50 cents for sample. EDWARD BURGESS, Poughkeepsie, N. Y.

50,000 Peach Trees.

4 to 6 ft. high, 1 year from bud, well ripened. Leading varieties, true to name. Also a general assortment of Nursery stock. Concord Vines and Osage Hedge in quantity. Potatoes for seed of the newer varieties. Early Rose by the hundred bushels. Send for price list.
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Six very Choice Plants, by Mail, postpaid, for $2, viz.:

Geranium, Gloire de Nancey.—The finest double flowering Geranium in cultivation; very free, with very large trusses of rosy scarlet flowers, elegant for the vase.

Monthly Tree Carnation, President Degraw.—The best double white Carnation; very fragrant, and unsurpassed for winter bloom.

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Dianthus Quetierii.—A beautiful perpetual hybrid Pink, with large scarlet-crimson double flowers, produced profusely from May to October, also flowers well in winter. Extra fine.

Bouquet Dahlia, Little Herman.—With small, close, compact flowers, of a beautiful cerise pink, tipped with white, and sporting into three or four varieties upon the same plant; flowers early and very profuse. The best Bouquet Dahlia ever sent out.

Fuchsia Vainqua de Peubla.—The best double white Fuchsia; sepals bright red, well reflexed; corolla very full double, white, feathered with rose.

The plants are put in cigar boxes, with nearly the entire ball of earth, and were sent with perfect success the past season to Denver City, Colorado.

Descriptive Catalogue of Bedding Plants forwarded on application, by enclosing one blue stamp.
Address DEXTER SNOW, Florist,
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GEN. GRANT,
The best in the Field!

Gen. Grant Tomato seeds, 15 cts. per paper. Flower seeds, 25 cts. for 6 kinds. Gladiolus Bulbs, 25 cts. each, $2 per doz. Iris Bulbs, 50 cts. per dozen. Chrysanthemums, Dicentra spectabilis, 25 cts. each. 8 Perennial and Biennial plants, $1.00; 25 cts. articles, 5 for $1.00. Also, Fottler's and Stone Mason Cabbage, Yellow Danvers Onion, Blood Turnip Beet, Long Orange, Short Nates, and white Belgian Carrot, and Radish Seeds. Price per lb., oz., or package, on application. By mail, free. Terms cash. S. H. MARTIN,
Marblehead, Mass.

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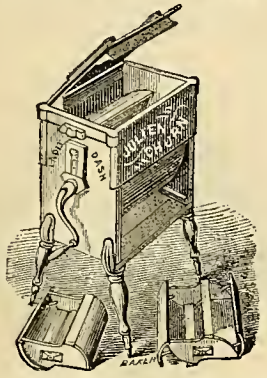

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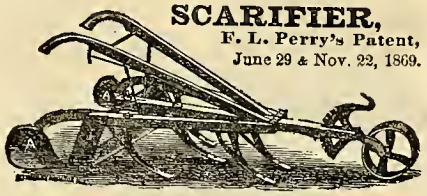

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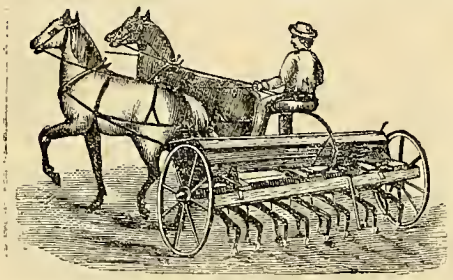

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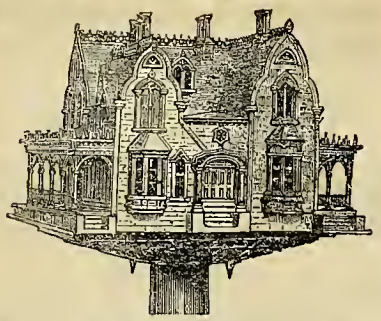

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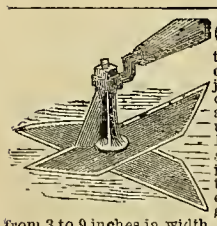

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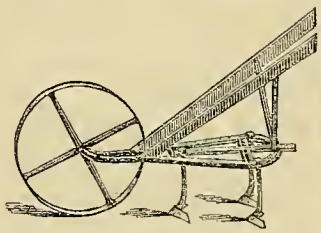

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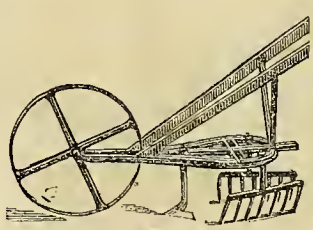

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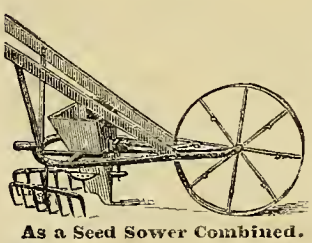

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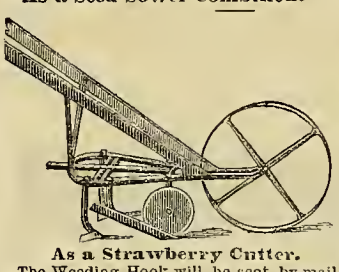

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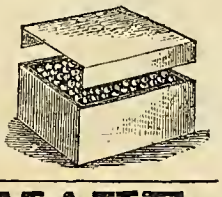

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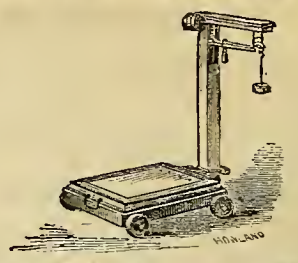

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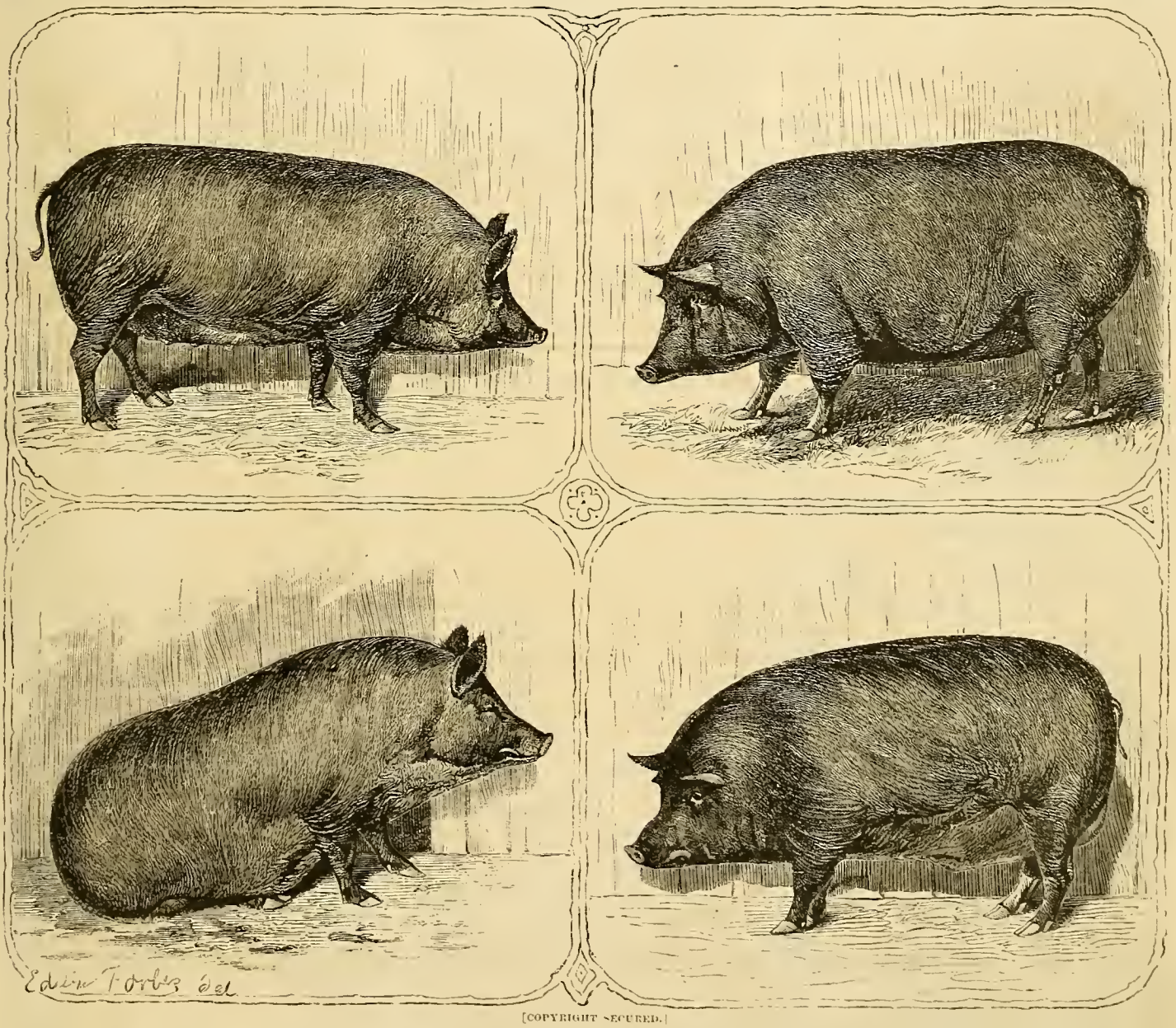

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ESSEX SWINE.—*Drawn from Photographs and Engraved for the American Agriculturist.*

The Essex are at present attracting much attention from those interested in improving their swine. As there is not space here to enumerate even briefly their claims to consideration, we give a separate article on page 130. The animals above represented are upon the farm of Mr. L. A. Chase, of the *American Agriculturist*, at Northampton, Mass., and are only in breeding condition. The two young sows were bred by Joseph Harris, Esq., ("Walks and Talks,") Moreton Farm, Rochester, N. Y., and the old boar, represented in two positions, is from the herd of Edwin Thorne, Esq., Washington Hollow, N. Y. In contrast with these animals, we give upon the cover an excellent portrait of a wild boar. The influence exercised by man upon the form and character of animals is nowhere more strikingly shown than in the pig. The form and peculiarities which adapt the animal to a wild life in which it has not only to provide its own food, but to protect itself and its young from enemies, are quite different from those required in a state of domestication, where the the animal's whole energies are to be concentrated upon turning vegetable food into pork. By selection and crossings, breeds have been established in which not only aptitude to fatten has become a fixed character, but the amount of bone and useless parts reduced to a minimum. The offal in the Essex is only about ten per cent of the live weight.

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Day of Month.	Day of Week.	Boston, NEngland, N. York State, Michigan, Wisconsin, Iowa, and Oregon. Sun rises.	Sun sets.	Mo'n sets.	N. Y. City, Cl., Philadelphia, New Jersey, Penn., Ohio, Indiana, and Illinois. Sun rises.	Sun sets.	Mo'n sets.	Washington, Maryland, Virginia, Kentucky, Missouri, and California. Sun rises.	Sun sets.	Mo'n sets.
		H. M	H. M	H. M.	H. M	H. M	H. M.	H. M	H. M	H. M.
1	F	5 43	6 25	7 5	5 44	6 24	7 6	5 46	6 23	7 4
2	S	5 41	6 27	8 3	5 42	6 26	8 1	5 44	6 24	7 59
3	S	5 40	6 28	9 1	5 41	6 27	8 58	5 42	6 25	8 56
4	M	5 38	6 29	9 58	5 39	6 28	9 55	5 41	6 26	9 51
5	T	5 36	6 30	10 57	5 37	6 29	10 53	5 39	6 27	10 49
6	W	5 35	6 31	11 54	5 36	6 30	11 49	5 37	6 28	11 44
7	T	5 33	6 32	morn	5 34	6 31	morn	5 36	6 29	morn
8	F	5 31	6 33	0 48	5 33	6 32	0 43	5 34	6 30	0 28
9	S	6 30	6 34	1 40	5 31	6 33	1 35	5 33	6 31	1 30
10	S	5 28	6 36	2 27	5 30	6 34	2 23	5 31	6 32	2 18
11	M	5 26	6 37	3 10	5 28	6 35	3 6	5 30	6 33	3 2
12	T	5 25	6 38	3 49	5 26	6 36	3 46	5 28	6 34	3 43
13	W	5 23	6 39	4 25	5 25	6 37	4 23	5 27	6 35	4 21
14	T	5 21	6 40	4 58	5 24	6 38	4 57	5 25	6 36	4 56
15	F	5 20	6 41	rises	5 22	6 39	rises	5 24	6 37	rises
16	S	5 18	6 42	7 47	5 20	6 40	7 45	5 23	6 38	7 42
17	S	5 16	6 43	9 3	5 19	6 41	9 0	5 21	6 39	8 56
18	M	5 15	6 45	10 17	5 17	6 42	10 13	5 20	6 40	10 8
19	T	5 13	6 46	11 24	5 16	6 43	11 19	5 18	6 41	11 14
20	W	5 12	6 47	morn	5 14	6 44	morn	5 17	6 42	morn
21	T	5 10	6 48	0 24	5 13	6 45	0 19	5 16	6 42	0 14
22	F	5 9	6 49	1 16	5 11	6 46	1 11	5 14	6 43	1 6
23	S	5 7	6 50	1 59	5 10	6 47	1 53	5 13	6 44	1 51
24	S	5 6	6 51	2 34	5 8	6 48	2 30	5 11	6 45	2 27
25	M	5 4	6 52	3 6	5 7	6 49	3 3	5 10	6 46	3 0
26	T	5 3	6 53	3 34	5 6	6 50	3 32	5 9	6 47	3 30
27	W	5 1	6 55	3 59	5 4	6 51	3 58	5 8	6 48	3 57
28	T	5 0	6 56	4 24	5 3	6 52	4 24	5 6	6 49	4 24
29	F	4 58	6 57	4 48	5 2	6 53	4 49	5 5	6 50	4 50
30	S	4 57	6 58	5 15	5 0	6 55	5 17	5 4	6 51	5 19

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1st Quart..	8 11 41 ev.	11 29 ev.	11 17 ev.	11 5 ev.	10 35 ev.
Full.....	15 5 42 ev.	5 30 ev.	5 18 ev.	5 6 ev.	4 36 ev.
3d Quart...	22 11 41 m.	11 29 m.	11 17 m.	11 5 m.	10 35 m.
New Moon	30 1 53 ev.	1 41 ev.	1 29 ev.	1 17 ev.	0 47 ev.

AMERICAN AGRICULTURIST.

NEW YORK, APRIL, 1870.

However much winter we may have in March, we are sure to have spring in April. At the time of writing, our summer-like winter is tardily asserting itself, and making spring dates like apples of Sodom—or broken promises. Farmers are likely to have their generalship and management sorely taxed, for a late spring puts one's power of every kind to the test. If a farmer cannot multiply men and teams to suit the tardiness of the season and his own convenience, he must manage his work to accomplish the most possible with the fewest steps of men and teams, and in the shortest time. A late spring does not insure a late June, but we may calculate on rather an early one—no harm will be done whether it comes or not. We are too apt to look over the fence, and plan work by our neighbor's, and take somebody's else estimate of the weather, etc. Men seldom blunder in getting ahead with work. The common failing with American farmers is, that they cannot manage men except as foremen, doing half as much again work as any man they can hire. If such a one makes farming pay, it is by the labor of his hands rather than by "the sweat of his brow," which we are inclined to interpret as meaning *head-work*."—"By the sweat of thy brow thou shalt eat bread." One of the best farmers we know, says, sometimes he fairly longs to do a day's work, but he can't afford the time. Now and then he takes hold just to show the men that he knows exactly how he wants the work done; but his time is worth double or triple what it will cost him to labor in the field. We train our boys to work, that they may know how to do everything well; but they should also be trained to manage hands, and plan work. It requires both to make an accomplished farmer. No farm work can be done without hands, tools, and teams, and it is the farmer's first business to provide these, then to make good use of them.

Farm Hands.—The rate of wages keeps pretty high in spite of the low prices realized for most farm products. Cities are crowded with men who demand a little higher wages than the majority of farmers are willing to pay; but the numbers going to parts of the West and South indicate that the labor market receives bids from every section.

Hints About Work.

Live-stock.—As the weather grows warmer, vermin increase in numbers on live-stock of all kinds. The long coats upon horses, cattle, and sheep, favor their increase, and when once they have a foothold, only vigilance in the thorough application of remedies will rid one's stables. Washing with carbolic soap we have found effectual. Those who have not, must have used the solution too weak. The curry-comb, or card and brush, are efficient also, and do all kinds of animals much good. Spring is a trying season with most stock, and all should have plenty of feed and water, with all the salt they want. Let cattle and horses drink all they will, unless heated, or very thirsty.

Milch Cows.—Feed new milch cows liberally, giving roots with bran or oil-meal. Cows that have not calved should have less of like food.

Calves, to be reared, should be as well fed as those intended for the butcher, unless they be of those breeds like Jerseys, Kerrys, and Brittanys, in which diminutive, or small size, is a point of excellence. We believe in removing calves to be brought up by hand, at once from the cow, and teaching them to drink from the very first. It is much safer to trust them with the cows in the same pastures afterwards. Sour milk will produce scours, and boiled milk, thickened with a little fine wheat flour, will pretty surely check it, if not neglected.

Working Oxen, that have been doing little during the winter, will be liable to have sore necks if the yokes and bows do not fit well. If much is demanded, give extra feed, and groom like horses.

Beeves should have the range of a yard on fine days, after feeding. Give them no chance at the grass until they are turned out into rich, fattening pastures. Oxen well wintered, and not overworked, will do a great amount of labor if well fed, and turned out in June, will fatten rapidly.

Horses.—Groom daily and thoroughly. Have especial care that they are not chilled after work, and that feed and water are not given too soon. At this time, when, in addition to the labor required of them, they are renewing their coats, they are peculiarly sensitive to cold and exposure.

Birds are great company about a house, and a great protection against insects. Court the garden Wren, and set little houses about, at reasonable distances apart, for them. They trouble no fruit, and Bluebirds are equally good as insect killers.

Getting out Manure.—Determine how many loads you will put upon an acre; then, knowing the size of the lot, it is easy to calculate in how many heaps a load should be dumped, and how far apart they should be. With a definite calculation, and the first row of heaps along a straight side accurately laid, the field may be evenly covered.

Plowing.—The land should be dry—no packing of the soil, nor water standing in the furrows, should be seen. The swivel plow is coming greatly into favor, because it leaves no dead furrows. A similar advantage attends back furrowing, but this requires close calculation to come out right. For root crops, no implement is better than the Michigan plow, provided the land can have a good top-dressing, or the crop manured in the drill. In plowing for grain crops, however, the manure should be kept near the well-pulverized surface.

Draining.—Where surface drains will expedite the removal of water from the land, open them with the plow and shovel; and if opportunity offers, when other work will not be hindered, set all the hands that can be spared at underdraining.

Grain Fields.—Pick off stones, top-dress with "hand manures," sow clover seed, and roll if the plants have been heaved by the frost. A good flock of sheep driven over the land has much the same effect as a roller upon grain and grass.

Grass Land.—Permanent meadows need little attention at this season except vigorous letting alone. If there are stones which have worked to the surface, it is a good time to remove them; and where the grass is failing on gravelly knolls, and such places, a sprinkling of gypsum and ashes

will have marked benefit. Newly seeded land will probably be benefited by rolling, after the stones have been picked off, if there are any, and on this the clover will usually do better for a little plaster.

Pastures.—The earliest spring pasturage is in swampy land, where the bogs have been burned over. The young grass, though coarse, is sweet and tender. Keep the herds off from upland pastures until the grass gets a good start. Top-dressings of ashes, leached ashes, plaster, superphosphate, and especially bone-dust, are particularly good for pastures—the earlier applied, the better.

Irrigation of Grass Land receives too little attention. It may be the source of great profit, not the least of which is the production of rank crops of timothy and orchard grass for soiling, much earlier than they would otherwise grow.

Soiling Crops.—These should only be grown upon the richest land, the object being foliage, and not grain, or seed. Oats alone, oats and peas, and spring wheat, are the usual soiling crops put in this month. The ground should be well manured, warm, and mellow, and the seed should be put in as early as it is in this condition.

Barley is an excellent crop; for, though the straw is short, the grain brings a good price usually, and is, besides, excellent for feeding out on the farm to horses, sheep, or poultry. Be careful that the seed is free from oats, and all of one kind. Two-rowed, four-rowed, and six-rowed, are frequently all found mingled in the same lot, much to the dissatisfaction of brewers, and the discredit of the raiser.

Wheat.—There is, doubtless, a marked difference in varieties, but the yield and profits of wheat raising depend more upon the preparation of the soil than upon the kind of wheat. The more thorough the tillage, the better. A finely worked, well enriched, warm soil, early sowed, is what the crop demands. It is far better to drill in the seed than to sow broadcast. It should be soaked in strong brine, and rolled in lime, to kill the smut spores.

Potatoes.—Cut the seed to single eyes, and plant in ground enriched with old, well-rotted manure, or manured last fall. Planted in hills the crop is never quite so large as in drills, but the digging is much more rapid and satisfactory. Plant deep, and when the plants show themselves, turn a ridge over them with a plow, and after a week harrow it flat again. Early Goodrich and Early Rose are the best early varieties, the latter the best and most reliable. The former sometimes of poor quality.

Roots.—Work the soil deeply, and enrich it well, applying fine manure. Sow in drills 24 to 30 inches apart, to admit of doing all the tillage by horse-power. Carrots may be sown closer than above stated, but the labor of cultivation is increased.

Work in the Horticultural Departments.

As we write these notes, early in March, the outlook is more wintry than it has been since December. It is never safe to make predictions concerning the season, but it is proper to be prepared, not only now, but always, for a late spring. It is with this view that we suggest doing many things during the mild spells of winter that are often left until spring. April is always an uncertain month at the North, and it will be useful to look back through the notes for other months for suggestions.

Orchard and Nursery.

Preparing to Plant.—The land should have been prepared last autumn, but many will do it this season. In the hurry to have the soil ready for the trees, do not be tempted to plow while it is wet. It should crumble as the furrow is turned, and be in a condition to produce a good corn crop.

Draining will often be needed, but this can be done after the trees are set.

Planting.—Use no manure about the roots, but surround them with fine surface soil. Spread the roots naturally, and if there are any masses of tangled fibres, separate them. Work the soil well in, among the roots, and, if necessary, use water to wash it into the small cavities. It is supposed that the trees have first had a proper

Pruning before Setting.—See that all roots, mutilated in digging, have a clean cut, and cut back the top one-third or one-half of last year's growth, according to the amount of roots that remain.

Trees in bad order, from delay in transportation, must be treated according to their condition. If shriveled, bury them, tops and all. If they have heated, and the buds started, cut back severely.

Trees that cannot be well planted.—It sometimes happens that the land is not ready, or other work presses so, that the trees, though at hand, cannot be set in a proper manner. Rather than hurry the planting, it is better to set them out in good soil, in nursery rows, and allow them to grow there for one season. They will then be ready for planting in the orchard early in autumn.

Root Grafts.—Set out in rows far enough apart to work with the cultivator, and a foot apart in the row. Bring the soil close in contact with the roots.

Nursery Stock.—Head back before the buds push, as cutting when in leaf will check the growth.

Budded Stocks.—Cut off above the bud those where the budding has been successful. Apples and pears, upon which the buds have failed, may be stock grafted close to the root.

Seeds of apple and pear should be sown early in rich soil, to get a growth before hot weather. Take Peach stones from the seed-beds or heaps, sift the earth from them, and plant in nursery rows.

Fruit Garden

The amateur is much puzzled with descriptions of new varieties of fruits, each claiming to be better than those that are in general cultivation. Among all fruits there are some which, though not the best in all points, have the most desirable quality of being reliable. While we would have all who can afford to do so, to test the new kinds, we advise those about to plant for family use to take for their main dependence the well tested sorts.

Grape-Vines.—The Concord is the most generally known variety. The Eumelan promises to be a favorite. Delaware, Iona, Salem, and others, are excellent where they will succeed. Varieties that have been laid down are to be taken up and tied to the trellis. Plant good one-year-old, or at most, two-year-old vines. It is common to see vines an inch and more in diameter for sale. Such are not worth planting. If it is desired to propagate a variety by layers, open a trench a few inches deep, and lay down a cane of last year's growth. This may be fastened in place by pegs, but it is not to be covered with earth until the shoots have pushed. Cuttings of those varieties that start without artificial heat may be put out.

Strawberries.—Plant as directed last month—the earlier the better. Go over beds that were covered with straw last fall, and part the straw over the plant, but leave it to mulch the soil.

Blackberries.—Set early. See last month. The Kittatinny is the best generally tested variety.

Raspberries.—The tender varieties are to be uncovered. The Black Caps do not sucker, and the fruit is liked by most people. The McCormick (called Mammoth Cluster by some) is one of the best.

Currants.—Set plants in good soil, and give them good care. Proper pruning and culture will make almost any of the varieties acceptable. The Versailles and White Grape are the leading sorts.

Gooseberries.—The Houghton and American Seedling are hardy. Some of the English sorts may be tried in a moist soil by those who are fond of experiments. They will often mildew with the best care.

Kitchen Garden.

In the notes for last month we said all that is necessary about forwarding crops under glass, though we must repeat the necessity of care in giving ventilation to plants in hot-beds and cold-frames. The plants are more likely to suffer from too much heat than from too great cold.

Seed Sowing is to be done according to locality. Garden vegetables are divided into hardy and tender. Onions, leeks, beets, carrots, spinach, cabbage and its relatives, lettuce, parsley, parsnips, peas, radish, cress, salsify and turnip are hardy, and may be sown when the soil can be well worked. Beans, melons, cucumber, squash, tomato, okra, nasturtium and sweet corn are tender, and need the the same conditions of soil and temperature as required by Indian corn.

Seed-Beds are used for all plants that require transplanting, or that it is most convenient to raise in this way. These should be of light and rich soil, placed in a sheltered part of the garden.

Varieties.—We usually give this month a list of a few of the leading sorts as a guide to the inexperienced. There are others equally good with those we name; our object is to save the novice the perplexities which a crowded catalogue presents.

Novelties.—Each year the seedsmen offer new varieties. Some of them prove good, and some inferior to old sorts. It is well to try a few new things every year, if one can afford it.

Asparagus.—Fork over old beds. Make new beds by setting one-year-old plants. See page 20, (January). Conover's Colossal is the leading variety.

Beans.—Early Valentine is the standard bush sort. Black Wax is excellent. Plant in drills, 2 feet apart. Among pole beans, the Giant Wax is best for snaps, and Large Lima for shelling.

Beets.—Bassano is earliest, but Early Blood Turnip is better. Dewing's, Hatch's and Egyptian are new and highly praised. Drills a foot apart.

Broccoli.—White and Purple Cape are good. Treat the same as cabbages.

Cabbage.—Early Wakefield and Little Pixie are good early. Early Wyman, new and large. Winningstadt is best for light soils and medium late. Marblehead Drumhead, Fottler's, Flat Dutch and others are good late. Early, Blue Savoy and Drumhead. Sow in seed-bed or cold-frame. Set plants out from cold-frame, 16 inches apart in rows 2 feet apart, as early as the soil can be worked.

Carrot.—Sow same as beets. Early Horn.

Cauliflower.—Half Early Paris, of which the Boston Market is a strain, is the best for general culture. Treatment, as for cabbage.

Celery.—Dwarf White Solid, Boston Market. Some of the red sorts, such as Incomparable, and Dwarf Crimson, are fine. Sow in seed-bed. Turnip-rooted is for soups and salads.

Corn.—Crosby's Early, Farmer's Club, Mammoth Sweet and Stowell are all good. Mexican, though black, is the sweetest of all.

Cress.—Sow the Curled at intervals of a week.

Cucumbers.—Early Russian, earliest; White Spine, for general crop; Green Prickly, for pickles. General Grant is a new variety, highly commended. Start as directed last month.

Egg-Plant.—Long Purple, earliest; Black Pekin, best. Always sown under glass.

Horse-radish.—Plant sets in manured trenches, and fill up with earth as the plant grows.

Kohl-rabi.—Early White. Sow in rows 2 feet apart.

Leek.—Flag and Musselburgh. Sow the same as onions, or in a seed-bed to transplant.

Lettuce.—Curled Silesia, Curled Simpson, Tennis Ball; many other sorts are in the catalogues. Sow in seed-bed; set out plants from cold-frames a foot apart each way.

Melon.—Ward's Nectar, Skillman's Netted, among the older sorts; Sills' Hybrid and Cassabar, are new and fine. Treat the same as cucumbers.

Onions.—See article on growing from sets, page 91, last month. Seed must be sown on very rich soil in rows 15 inches apart. Early Red, Danvers Yellow, White Portugal. Potato onions are grown from sets.

Parsley.—Curled. Soak the seeds before sowing.

Parsnip.—Sow in 15-inch drills last year's seed. Hollow-Crowned is best.

Peas.—Carter's First Crop, Daniel O'Rourke, Lit-

tle Gem, Champion of England, all good. See catalogues for a host of others. Alpha and Laxton's Supreme are among the novelties.

Peppers.—Squash, for pickling, Sweet Mountain, for stuffing. Monstrous is a new sort. Need to be started under glass.

Potatoes.—We have seen nothing equal to Early Rose for garden culture.

Radish.—Early Scarlet Turnip, Short-top Long Scarlet, Olive Shaped. Sow early and at intervals of 10 days wherever there is room.

Rhubarb.—Manure old beds. See page 103, last month, for directions for sowing and cultivating.

Salsify.—Sow and cultivate the same as beets.

Spinach.—Sow in 18-inch drills. Round-leaved is the most used. The Lettuce-leaved commended. New Zealand is excellent in summer, as is the Perpetual Spinach Beet.

Sweet Potatoes.—The tubers should be put in hotbeds the middle of the month. Cover the manure with 2 inches of good compost, and lay the tubers close together. When the buds start, cover them with an inch of compost. Nansemond, the standard sort, Southern Queen, new and good.

Squash.—Summer Crook-Neck is the best bush variety. Boston Marrow and Hubbard, for late.

Tomato.—Early Smooth Red, General Grant, are well established. Rising Sun and Charter Oak are new and fine. See article on page 61, Feb. Sow under glass or in window boxes, as directed last month.

Turnip.—Flat Dutch, for early. Red and White-top, for late. Of the Ruta-baga sorts, the Sweet German and White French are best for family use.

Flower Garden and Lawn.

In laying out a place the roads and paths should receive the first attention, and then the lawns and flower-beds.

Lawns.—Sufficient information on forming new lawns is given in previous months. Old lawns should be top-dressed with good compost, guano, and bone-dust, a good phosphate, or ashes. Where the grass is taken off, some fertilizer must be used to keep the turf in good condition. Sow seed on thin spots, and roll as soon as the frost is out.

Trees and Shrubs.—Transplant all deciduous ones before they start. Those taken from the woods must be trimmed severely to make them succeed.

Perennials.—Those that have grown three or four years in one spot need to be taken up, divided and set in a new place before growth starts.

Annuals.—Sow hardy sorts as soon as the ground can be worked. Tender ones must be left until later, or sown under glass. The number is so large that we must refer to the catalogues for novelties.

Bedding Plants must not be put out until the soil is well warmed and chilly nights are over.

Roses require a rich, well drained soil. For summer blooming the Tea and China roses are best, but the Remontants, which usually bloom in spring only, are the finest. Get them on their own roots.

Green-house and Window Plants.

The plants should be prepared for turning out of doors by the admission of air every pleasant day. Be prepared to heat up during cold, damp weather.

Water will be needed more frequently than during winter, and window plants often become too dry.

Propagate such bedding plants as will be needed, before the sun gets too warm, and pot off as fast as they strike.

Roses and Carnations are nearly hardy, and must be turned out as soon as the soil can be made ready.

Dahlias may be started and the shoots cut off with a small portion of root and potted.

Tuberoses.—To insure a bloom in the open ground, pot and start late in the month.

Main Grape.—"F. B.," Framingham, Mass.—This has been decided by some of the best pomologists of your State to be nothing but the Concord.

AMERICAN AGRICULTURIST.

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"HAND TO MOUTH."

A very large number of people live along from day to day spending all they get, and making little or no provision for the future—as the old adage has it, they "live from hand to mouth." The most successful men and women are those who look *farthest ahead*, and lay out wise plans to-day to be carried out in the future, so that, when the time for action comes, they are all ready to make every stroke tell to the best advantage. This is true in every department of business; in trade, in household affairs, in farm labor—in short, everywhere. The men who invest in good stock, manures, improved implements, fruit trees, etc., with an eye to the future, are those who attain the richest results....And the same is the case with the labors and results of *each* year taken by itself. Those, who in winter lay out all their plans for the year, even to the smallest items, who study the prospective demands for different grains, meats, etc., and when the spring opens are *ready* to make every blow effective, are those who will be the largest gainers, or the least embarrassed, on December 31st. The period for action is at hand, yet there is still some time for planning the work for the whole of the year....So much of an important topic, but here is what we sat down to say:

SPRING WORK is upon us, and now the "hand to mouth" people, after drowsing away the winter months, are just waking up to see what they are going to do. They are running to their neighbors to talk over what they can best do, or how to do it. *Query:* Would it not pay them, to now get the numbers of this Journal from January 1st and read up as fast as they can all the hints and suggestions already given, and study each number carefully as it comes out? It would pay most men to study the advertising pages only. These afford many hints about what is done in the way of improved implements for tillage, improved seeds, fruits, etc., etc.... *We close by just hinting to all our canvassers for premiums that* **NOW,** *THIS MONTH, is a capital time to call upon all these "hand to mouth" people, while they are in a knowledge and* **plan**-*seeking mood, and get them to subscribe for the American Agriculturist. The partially completed lists can be thus filled up, and the premiums received;—they are ready, waiting for you. A multitude of MEN, WOMEN, and CHILDREN, can also start NEW LISTS and quickly complete them, and thus each get, without money investment and without cost, one or more of the fine Premium articles named in the Table.*

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3	*Shorthorn Bull*	$700 00	580	1700
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15	*Cotswold Ewe*	$100 00	120	350
16	*Cotswold Ewe*	$150 00	165	500
17	*South down Ram*	$100 00	120	350
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19	*South down Ewe*	$75 00	100	285
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26	*Black Spanish Fowls, one Pair*	$20 00	30	97
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28	*Gold Laced Sebright Bantams, one Pair*	$15 00	22	75
29	*Bresee's King of the Earlies, (2 lb. parc.)*	$2 00	5	22
30	*Norway Oats, (1 peck, Ramsdell & Co.)*	$2 75	7	27
31	*Garden Seeds for a Family (40 kinds)*	$5 00	13	37
32	*Flower Seeds for a Family (100 kinds).*	$5 00	13	37
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38	*Sewing Machine (Wilcox & Gibbs)*	$55 00	60	240
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51	*Knives and Forks (do. do.)*	$18 50	27	90
52	*Knives and Forks (do. do.)*	$22 00	33	110
53	*Knives and Forks (do. do.)*	$25 50	39	121
54	*Carver and Fork (do. do.)*	$5 00	13	37
55	*Fluted Steel (do. do.)*	$2 50	6	25
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57	*Pocket Knife (do. do.)*	$2 00	5	22
58	*Pocket Knife (do. do.)*	$2 50	6	25
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Every Premium is described in the October Agriculturist, and also in a **Special Sheet,** *which will be sent* **free** *to every one desiring it. We have room here for the following only:*

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Commercial Matters—Market Prices.

The following condensed, comprehensive tables, carefully prepared specially for the *American Agriculturist*, show at a glance the transactions for the month ending March 14, 1870, and for the corresponding month last year.

1. TRANSACTIONS AT THE NEW YORK MARKETS.

RECEIPTS.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
22 days *this* m'th.	193,500	228,500	118,000	1,000	87,000	189,000
26 days *last* m'th.	164,500	156,000	101,000	1,650	96,500	141,500
SALES.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
22 days *this* m'th.	199,000	1,251,000	806,000	21,000	288,000	734,000
26 days *last* m'th.	178,500	1,629,000	964,000	34,000	139,000	1,018,000

2. *Comparison with same period at this time last year.*

RECEIPTS.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
22 days 1870	193,500	228,500	118,000	1,000	87,000	189,000
23 days 1869	114,500	519,000	337,000	3,100	25,000	187,000
SALES.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
22 days 1870	199,000	1,251,000	806,000	21,000	288,000	734,000
23 days 1869	191,000	1,393,000	1,274,000	35,700	175,000	1,115,000

3. *Exports from New York, Jan. 1 to March 14:*

	Flour,	*Wheat,*	*Corn.*	*Rye,*	*Barley,*	*Oats.*
1870	295,725	1,717,591	49,257	6,709	———	5,398
1869	194,449	1,712,169	656,051	———	31,646	———
1868	130,106	437,527	1,797,749	61,692	———	16,211

4. *Stock of grain in store at New York:*

1870.	*Wheat,* bush.	*Corn,* bush.	*Rye,* bush.	*Barley,* bush.	*Oats,* bush.	*Malt.* bush.
March 7	2,509,603	484,176	39,089	278,905	1,105,194	97,139
Feb. 11	2,902,638	534,003	62,112	322,435	1,199,672	36,214
Jan. 12	4,423,028	591,903	38,289	34,900	1,310,935	85,165
1869.						
Dec. 11	3,810,362	833,909	50,043	285,906	1,386,594	77,097
Nov. 10	1,616,030	693,685	31,503	31,584	281,581	66,782
Oct. 11	978,272	445,068	34,467	5,948	120,959	67,094
Sept. 6	745,121	127,736	56,081	——	183,920	134,870
Aug. 9	634,262	253,155	75,797	361	50,219	105,458
July 10	531,657	328,613	71,418	2,966	259,985	97,177
June 7	637,877	385,241	107,546	383	555,903	109,746
May 11	1,056,048	394,156	107,502	17,684	613,166	77,677
Apr. 10	1,684,633	1,080,769	165,008	48,281	1,178,710	66,664
March 12	1,990,416	1,301,167	211,880	81,616	2,000,457	50,095
Feb. 10	2,708,609	1,407,646	225,182	91,384	2,390,529	58,034

CURRENT WHOLESALE PRICES.

	Feb. 15.			March 11.		
PRICE OF GOLD		**120¼**			**112⅝**	
FLOUR—Super to Extra State	4 60	@	6 00	$4 45	@	5 75
Super to Extra Southern	5 50	@	10 00	5 85	@	9 75
Extra Western	5 00	@	9 25	4 65	@	9 25
Extra Genesee	6 00	@	7 35	5 75	@	7 25
Superfine Western	4 60	@	4 90	4 45	@	4 75
RYE FLOUR	4 00	@	4 75	4 30	@	5 50
CORN MEAL	4 25	@	4 85	4 25	@	4 90
WHEAT—All kinds of White	1 35	@	1 63	1 35	@	1 65
All kinds of Red and Amber	1 05	@	1 35	95	@	1 33
CORN—Yellow	95	@	1 15	97	@	1 12
Mixed	85	@	1 07	80	@	1 05
OATS—Western	55½	@	61	53	@	61
State	61	@	63	60	@	62½
RYE	80	@	90	90	@	1 05
BARLEY	87½	@	1 20	80	@	1 12½
HAY—Bale ℔ 100 lb	85	@	1 20	90	@	1 25
STRAW, ℔ 100 lb	70	@	1 10	70	@	1 10
COTTON—Middlings, ℔ lb	25½	@	25⅝	21½	@	22¼
HOPS—Crop of 1869, ℔ lb	15	@	28	10	@	25
FEATHERS—Live Geese, ℔ lb	75	@	87½	75	@	85
SEED—Clover, ℔ lb	12⅝	@	13½	12½	@	13
Timothy, ℔ bushel	4 25	@	4 75	4 00	@	4 50
Flax, ℔ bushel	2 20	@	2 30	2 20	@	2 25
SUGAR—Brown, ℔ lb	9¼	@	12	8⅝	@	11½
MOLASSES, Cuba, ℔ gal	28	@	45	26	@	45
COFFEE—Rio, (Gold, in bond)	9¼	@	13	9¼	@	13
TOBACCO, Kentucky, &c., ℔ lb	8	@	14½	7⅜	@	14
Seed Leaf, ℔ lb	10	@	75	10	@	65
WOOL—Domestic Fleece, ℔ lb	45	@	60	44	@	70
Domestic, pulled, ℔ lb	23	@	46	25	@	47
California, unwashed	20	@	32	17	@	33
TALLOW, ℔ lb	9¾	@	10¼	9	@	9¼
OIL-CAKE—℔ ton	42 00	@	46 50	40 00	@	44 00
PORK—Mess, ℔ barrel	27 00	@	27 50	26 25	@	26 50
Prime, ℔ barrel	23 00	@	23 50	20 50	@	21 00
BEEF—Plain mess	8 00	@	14 00	8 00	@	14 00
LARD, in tres. & barrels, ℔ lb	14½	@	17	13¼	@	15½
BUTTER—Western, ℔ lb	18	@	33	18	@	32
State, ℔ lb	26	@	48	25	@	42
CHEESE	6	@	18½	6	@	16½
BEANS—℔ bushel	1 35	@	2 60	1 20	@	2 40
PEAS—Canada, in bond, ℔ bu	1 00	@	—	95	@	1 00
EGGS—Fresh, ℔ dozen	32	@	34	26	@	27½
POULTRY—Fowls & Chickens	17	@	21	18	@	22
Turkeys, ℔ lb	18	@	21	20	@	25
Geese, ℔ lb	—	@	—	16	@	18
POTATOES, ℔ bbl	1 25	@	2 00	1 25	@	2 25
APPLES—℔ barrel	2 50	@	4 50	3 00	@	5 00
SWEET POTATOES, ℔ bbl	—	@	—	—	@	—
TURNIPS—℔ bbl	1 25	@	1 50	1 25	@	1 50
CABBAGES—℔ 100	4 50	@	6 00	6 00	@	8 00
ONIONS—℔ bbl	4 00	@	5 50	4 00	@	5 00
CRANBERRIES—℔ bbl	10 00	@	13 00	—	@	—
BROOM-CORN—℔ lb	16	@	18	15	@	17

Gold has fallen very materially since our last, having been as low, on March 9th, as 110⅛@110¼, but it has since rallied to 114.. . ..Business in most branches has been disturbed by the fluctuations in gold, and values have been more or less unsettled.....Breadstuffs have been moderately active, but generally weak and irregular in price. The export demand has been fair for low grades of Flour, and for spring and amber winter Wheat. There has been more call for Rye, which closes stronger; and for Barley, which, under liberal supplies, leaves off quite heavily. The main business in Oats has been on speculative account, the market closing tamely.....Cotton has been very freely offered at much lower and irregular figures, leading to heavier transactions, largely for export.....There has been more doing in the Provision line, but at depressed and unsettled prices, in most instances.....Wool opened pretty briskly at firmer prices; but closed tamely, under the depression in gold, which discouraged the manufacturing interest.....Hay has been salable and firm... ..Hemp, Hops, and Seeds, have been quiet and irregular.....Tobacco has been in moderate request at former rates.

New York Live-Stock Markets.—

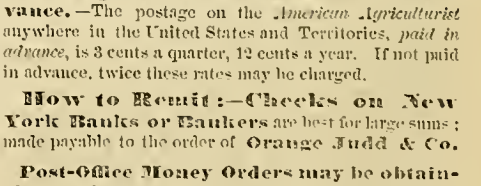
WEEK ENDING.	*Beeves.*	*Cows.*	*Calves.*	*Sheep.*	*Swine.*	*Total.*
Feb....14th	6,597	149	763	25,988	16,704	50,181
do. 22d	5,811	109	616	24,170	13,555	44,260
do. 28th	6,224	141	635	31,398	12,559	50,956
March 7th	7,613	120	1,128	17,731	13,332	49,924
Total in 4 Weeks	24,575	519	3,162	100,807	55,141	185,104
do. *for prev. 4 Weeks*	25,835	107	2,128	112,511	56,052	196,573

	Beeves.	*Cows.*	*Calves.*	*Sheep.*	*Swine.*
Average per Week	6,069	130	790	25,202	13,785
do. do. *last Month*	6,466	102	532	28,128	14,013
do. do. *prev's Month*	5,814	118	519	26,598	10,912
Average per Week, 1869	6,275	92	1,752	28,856	15,348
do. do. do. 1868	5,733	105	1,588	27,182	18,809
do. do. do. 1867	5,544	64	1,320	22,154	20,605
do. do. do. 1866	5,748	94	1,200	20,000	13,000
do. do. do. 1865	5,255	118	1,500	16,091	11,023
Total in 1869	326,280	4,827	91,083	1,469,509	798,190
Total in 1868	298,128	5,466	82,571	1,413,479	978,061
Total in 1867	293,832	3,369	69,911	1,174,154	1,102,643
Total in 1866	298,886	4,885	62,420	1,040,000	672,000
Total in 1865	270,271	6,161	77,991	836,733	573,190
Total in 1864	267,609	7,603	75,621	782,162	660,277

Feb. 14, ranged 10 @17c. Av. 14½c. Large sales 13 @16
do. 22d do. 11 @17c. do. 14⅝c. do. do. 14 @16
do. 28th do. 12 @17½c. do. 14⅞c. do. do. 14 @16
March 7th do. 10 @17c. do. 14½c. do. do. 14 @15¾

Beef Cattle have been a little more plentiful this month, the quality averaging rather low. The weather has been favorable for trade, and sales of good stock are easily made. Prices have declined somewhat, and varied from week to week for the same quality. The greatest decline is seen among medium and light steers, the "tops" generally holding their own. We place the decline since our last report at fully 1c. per lb net on all grades; and among the light steers at least 1½c. per lb. Since the season of Lent began, trade has dragged a little, and fewer sales are made at high figures. The high prices given below are for the very best bullocks, and the low price for very poor ones. We see but little improvement in the beef stock coming to our market, and prices must decline for medium and poor beef.

Milch Cows.—The supply has been lighter than last month, and we think poorer also. There are by far too many poor cows brought here for sale: $40 and $50 cows are not wanted. A good cow always commands a good price. Prices range a little lower. We quote good cows at $75@$90 each. Medium, $60@$70, and some poor ones even as low as $35.....**Calves.**—There is a little increase in the supply of live calves, and fewer dressed ones. The season of largest supply is close at hand, and prices are good. A good fresh calf, just from the cow, which has not suffered from transportation will sell quickly at 12c.@12½c. ℔ lb., for very extra ones, 13c. has been paid. Prices range from 10c.@12½c., according to quality. Dressed calves range from 16c.@18c. ℔ lb.....**Sheep** have improved a little in quality since our last report, and are fully equal in quantity to the demands of the market. Poor lots drag somewhat, but good sheep go off quickly. Prices range a little higher on prime sheep. The best lots in market sold for 8c.@9c. ℔ lb.; Medium, 6¼c.@7½c. ℔ lb.; and common sheep at 5c.@5¾c. ℔ lb.....**Swine.**—Hogs still go in large numbers direct to the slaughterers, and are sold afterwards as dressed pork. We think sales are made at a little higher figures than last month, but trade is slow. Corn-fed hogs, live-weight, are worth 9¼c.@9¾c.; Still-fed, about 9¼c. per pound lower. Dressed hogs are worth 11¼c.@11¾c. Western dressed, 11c.@11¼c. per pound.



containing a great variety of Items, including many good Hints and Suggestions which we throw into smaller type and condensed form, for want of space elsewhere.

Postage 12 Cents a Year in Advance.—The postage on the *American Agriculturist* anywhere in the United States and Territories, *paid in advance*, is 3 cents a quarter, 12 cents a year. If not paid in advance, twice these rates may be charged.

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Post-Office Money Orders may be obtained at nearly every county seat, in all the cities, and in many of the large towns. We consider them perfectly safe, and the best means of remitting fifty dollars or less, as thousands have been sent to us *without any loss.*

Registered Letters, under the new system, which went into effect Oct. 1, 1868, are a very safe means of sending small sums of money where P. O. Money Orders cannot be easily obtained. *Observe*, the *Registry fee*, as well as postage, *must be paid in stamps* at the office where the letter is mailed, or it will be liable to be sent to the Dead Letter Office. *Buy and affix the*

stamps both for postage and registry, put in the money, and seal the letter in the presence of the postmaster, and take his receipt for it. Letters thus sent to us are at our risk.

Clubs can at any time be increased by remitting for each addition the price paid by the original members, if the subscriptions all date at the same starting point. The back numbers will, of course, be sent to added names.

Bound Copies of Volume XXVIII (1869) are now ready. Price, $2, at our office; or $2.50 each, if sent by mail. Any of the previous twelve volumes (16 to 28) will be forwarded at the same price. Sets of numbers sent to our office will be neatly bound in our regular style at 75 cents per vol., (50 cents extra, if returned by mail.) Missing numbers supplied at 12 cents each.

The Chesapeake and Ohio R. R. Bonds.—Several years ago we became so well satisfied with the reliability, integrity, and good judgment of Messrs. Fisk & Hatch, that we have since then usually referred to them any questions of finance of our own, or coming from our readers, and followed their advice. When we see their names and credit connected with an enterprise, we take it for granted that it is a good thing, and on this ground alone we should have great confidence in the Bonds of the Chesapeake and Ohio Railroad, which they offer through our advertising columns. But, a little study of the road shows it to be one of great importance, and one most promising for financial success. The opening of a through route direct from the magnificent Chesapeake Bay to the Ohio River, at a point to which it is almost always navigable, will supply a main artery through the whole range of the South Middle States, from the Atlantic to the Mississippi River. It is worth while to send to Messrs. Fisk & Hatch and get a descriptive pamphlet, furnished free, and at least become acquainted with the route.

Ohio, Fruit and "Bugs."—The Ohio State Hort. Society memorializes the Legislature, setting forth that the orchard crops of the State are valued at over seven millions of dollars annually, and asks the appointment of a State Entomologist. We hope to hear of the appointment of one. Missouri takes the lead in the war against insects. Illinois has lost her most efficient entomologist. New York has an entomologist whose reports, buried in those of the ponderous Agricultural Society might as well never have been printed, so far as benefiting the public is concerned.

Sundry Humbugs.—The counterfeit, or *Fac-simile*, money operators are increasing in number, or, the old operators are working under many new names. They have to change names often; for as soon as they become known, Mr. Gayler pounces on their letters at the P. O.—Every honest person receiving any of these swindling circulars of any kind, at any time, will do well to send them at once to Mr. James Gayler, Special Agent N. Y. P. O. Dept., or to us. This dodge is as follows: Private, "very confidential" lithographic letters are sent out, saying that the parties have a stock of "exact imitations of United States Treasury Notes, executed by the most skillful engravers, etc.," which they offer to sell in sums of $500 and upwards, for 2 to 3 cents on the dollar, more or less, intimating in many ways, but not exactly saying, that these can be used as currency for their full face. Various statements are made, fictitious newspaper items are enclosed, a great deal said about secrecy, etc., etc. In this way they dupe multitudes of dishonest people to invest with them. When they send *anything* in answer, it is a reduced photograph of unsigned genuine notes, which latter, are, of course, "executed by the most skillful engravers," though the wording of the circulars is not thus understood by those who get them. It is a pretty safe business, for those who get thus swindled are not likely to publicly complain, and thus criminate themselves by making known their attempts to be counterfeit money purchasers. Then, again, when those swindlers do get brought up, a careful examination of their circulars shows that they have really only offered to supply *pictures* of money. This game has been very extensively carried on, but it is a satisfaction to know that none lose money but those willing to use and expecting to pass counterfeits. It is "rogue cheat rogue."—Among the new operators, or new *names*, in this line, are W. M. Martine, 75 Nassau St.; Daily & Co., 73 Nassau St.; I. W. Smith & Co., 39 Nassau St., N. Y.; Wm. Arnold, No. 1 Bond St., N. Y., *alias* James Arnold, Jr., St. Charles Hotel, N. Y., who uses manifold paper, and sends several manufactured newspaper items to give plausibility to his pretension; A. L. Harratt, Box 21, Hudson City, N. J., who locates over the river to dodge Mr. Gayler. Another suppresses his name, but a different hand writing on the book says "address A. J. Hitchcock, 148 Fulton St.;" etc., etc., etc.....A "Grand Presentation Enterprise," ostensibly on Broadway, is one of the new schemes circulated by mail. The operator attempts to make it appear that he is favored by the respectable Commercial Agencies of Messrs. McKillop, Sprague & Co., J. M. Bradstreet & Son, and Dun, Barlow & Co., by saying he was "influenced" by them, etc. He probably got the names from their printed books, or from them for a professedly legitimate object. The whole thing is no more than a lottery, a downright swindle, giving nothing in return for money sent....."Sunlight Oil," is noticed elsewhere (page 145). A correspondent at Marathon, N. Y., describes the operations of a fellow there selling recipes at $5.00 each, for "making Kerosene at 12 cents a gallon." From the descriptions, it is similar to the "Sunlight" affair. ☞ Beware of all these cheap, or manufactured oils. Don't let them try them in one of your buildings. One of these peddlers came into our own town with some "non-explosive, cheap oil, and while exhibiting it, it "went off," and produced a fire that destroyed a whole block of stores, entailing great disaster upon several parties!.....Against low-priced Sewing Machines, for $5, etc., we are again compelled to warn our readers, by the receipt of a fearful lot of complaints, from those who have sent money and can get no response to the original money letter, and others following it; and from others who have learned by experience that these $5 machines are nothing but a bother. Some of those advertising them appear to exist only in un-come-at-able circular and envelope shops..... If people will send money and clubs of subscribers to obscure towns, expecting to get three or four times their money's worth in watches, cheap sewing machines, etc., they must expect to be cheated. It is very easy to get up one taking number of a paper, printed in New York or other large city, date it at some out-of-the-way place, offer immense premiums for clubs, and pocket all the money sent in. A swindler in New Jersey has made a fortune in this way; changing the name of his so-called firm when the former one gets in too bad odor. For special reasons in this case we omit the name for the time being. The same trick is frequently played in this and other cities..... A vile villain calling himself "Mrs. R. S. Godfrey," sends murderous, infanticide circulars of the whining benevolent order, from a Long Island Post Office. We wish all such fellows had but one neck, and we had a rope around it; we should practically disagree with Mr. Greeley for the space of 30 minutes at least..... More humbug "Receivers" for Reed & Co's Swindle *alias* "Riverside," appear under the names of J. J. Dodd & Co., and John W. Ames.....Reinersville, Morgan Co., Ohio, has a "Gift Enterprise" man, who promises a newspaper and throws in a "ticket" for **1** chance in **25,628** for $500 in gold, provided 25,628 tickets are sold, and a few chances at some other prizes. Those who want newspapers will be wise enough, we hope, to send to the proper publishers, and know who is responsible for the money. None but foolish people will invest in *any* Gift enterprise, *alias* lottery.....We are sorry for the boy who lost his 25 cents, sent for a "Mocking bird whistle." It may be a useful investment. The writer lost his first 25 cents by a N. Y. Humbug, and it has, perhaps, saved him many dollars, and waked him up to saving a great many other people from being swindled.....A shrewd Nassau Street Swindler scatters advertisements in South Carolina and elsewhere that a "4-months old, healthy child" will be given to any one who will adopt it, and that $5,000 will be given to the benevolent individual who will take it, with good promises for its care. The swindle comes in just here: those writing about said child must enclose a postage stamp for reply;—and many thousands do send them!

The Weights of the Ayrault Oxen which were withheld from the public in order to give the butchers time to adjust their bets, are given as follows: Live weight, 3,300 lbs., and 3,320 lbs., making 6,620 lbs. for one pair; 3,406 lbs., and 3,440 lbs., making 6,846 lbs. for the other—said to be the heaviest weight ever attained by a pair of oxen bred and fed together.

Hair for Mattrass.—"T. D. P.," Newark, O. The hair for mattrasses is curled by first spinning it to make a hard-twisted rope; it is then boiled or baked, and afterwards the rope is picked to pieces by hand. It then retains the springiness imparted to it by the twisting and heating.

The American Botanist and Florist—By Alphonso Wood, A. M. New York: A. S. Barnes & Co. The work consists of two parts, elementary lessons, of 172 pages, and a descriptive botany, of 392 pages, including index. By the use of analytical tables, signs and abbreviations, the author has condensed descriptions of the native plants of the Atlantic division of the country, as well as the more generally cultivated ones. In doing this the author has shown great industry in reducing the descriptive matter to the briefest possible space. We must admit that we are not admirers of the condensed and meagre descriptions which botanists have of late given us. While, as in the case of the present work, they lead us to the name and botanical family of a plant by the shortest possible route, they fail to tell the young student all he would like to know about it. If some one of the present day would write such popular descriptions as did Dr. Bigelow in his Plants of Boston, botany would find many more students than at present.

Name Your State.—Several letters, some of them containing money, have no mention of the State. The Montgomery Co. Horticultural Society sends us reports of their meetings, but there is nothing in the report that enables us to guess in what State the meetings are held. A good share of the notices of County Fairs have no State mentioned.—Name the State! Name the State!!

Cabbages—How to Grow Them— By James J. H. Gregory, Introducer of the Marblehead Cabbage.—We always supposed that Mr. Gregory's horticultural title was "Introducer of the Hubbard Squash," but this work informs us that he is not only "J. H. S.," but "J. M. C." The work on the cabbage is uniform with that on the squash, and gives details of culture, method of wintering cabbages, varieties, etc. Much of the practice will be found new to many growers of cabbages, especially the recommendation to sow the seed where the cabbages are to stand. If Marblehead were not famous for its squashes it would be renowned for its cabbages, as, thanks to Mr. Gregory's care in seed-growing, the excellent character and wonderful size of some of the local varieties are strictly maintained. Sent by mail by Orange Judd & Co. on receipt of price—30c.

Feeding Jersey Cattle.—Mr. Wm. T. Hughes writes: "In answer to an inquiry as to what he considered the best feed for Jersey cows, Mr. Fowler gives the following answer: 'I recommend the following mixture, it having given the best result in an experience of 50 years in a dairy of Jersey cows: 2 quarts of the best *ground* (not crushed) oats, 4 quarts of bran and 1 peck of cut hay, mixed with 20 lbs. of sliced mangels. Divide into two meals, and feed morning and evening while milking. They should also have as much hay as they can eat up clean. The greatest care should be taken that none is left before them, as no more should be given than they can consume at once. This for winter feeding in stall. I give my dairy cows the oats, bran and cut hay through the summer when they come out of the pasture for milking. When dry, give no forcing foods.'"

Corn Stalks for Mulch.—J. H. W. Husman, in an essay read before the Montgomery Co. (State?) Hort. Soc., says that he has a power machine which cuts and grinds stalks very fine. He finds the ground material admirably suited for a mulch around strawberry plants.

Setting Trees.—"A. B.," West Branch.—Your plan is "Quincunx." Illustrated in March, 1868.

Tree Pedlers.—"S. T.," Orange county, sends us a strong complaint against tree pedlers, which is too long for our columns this month. It is the old story. Pear trees bought of pedlers bore fruit the size of crab-apples, and all alike, and the blackberries and raspberries were wild stock. Years of waiting and poor fruit as a reward. Mr. T. proposes that farmers who wish to purchase, to club together and send one of their number to a reliable nursery and procure the trees. He truly says, that farmers have a hard time of it with tree pedlers, patent fork venders, lightning-rod men, and the like.

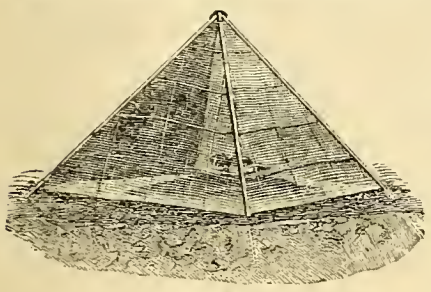
Fruit in Iowa.—A. E. Rich, West Union, says: "I was much interested in the article on fruit from your 'special contributor' in our State. The article is most excellent, but for this, the extreme northerly part of the State, needs a little amending. So far as experiments have been tried, trees set 14 feet apart, north and south, by 20 east and west, have done better than with more room; the object, of course, being self-protection. Your correspondent recommends protection on the north and west. Our prevailing winds are south and west. All old orchards exposed on the prairies in our part of the State lean to the north-east at an angle of from 30° to 45° in consequence of the prevailing south-west winds, and fruit half grown is blown from the trees universally by storms from that direction. The bodies of trees exposed by their inclination to the direct rays of the sun become diseased, the bark cleans off on the side thus exposed, and many valuable orchards are destroyed with us, for the want of a perfect south-west protection."

Barn Itch.—Eben Wight, Dedham, Mass., speaks in the highest terms of Buchan's Cresylic soap for exterminating the "barn itch" and lice on cattle,

Weeds of Maine—By F. Lamson Scribner.—This is a pamphlet of 62 pages, by a young botanist, a student at the Maine Agricultural College. It gives both a popular and brief botanical account of the troublesome weeds of the State, with suggestions as to their extermination. If farmers would become better acquainted with the strategy of their enemies, the weeds, they could operate against them with better chance of success. This little work will prove useful in teaching the proper names as well as the habits of weeds.

The Torrey Botanical Club.—The botanists of New York and vicinity have for some years been associated under the above name. With the present year they commenced the publication of a Monthly Bulletin of matters mainly relating to the local Flora. They desire to be in communication with all who are interested in studying plants within 30 miles of New York City. These and others can procure the Bulletin for a year by enclosing $1 to Wm. H. Leggett, 224 East 10th-st., N. Y.

Another Vine Protector.—If bugs are not kept away from cucumber, melon, and similar vines, it will not be for lack of contrivances to effect it. The latest one we have seen was in the stock of R. H. Allen & Co., and is shown in the engraving. It is made of mosquito net, four triangular pieces of which form the sides; the edges or corners are of two thin strips of wood,



VINE PROTECTOR.

nailed together with the netting enclosed between them. At the top are two small bits of leather, each one of which is tacked to two of the wooden supports in such a manner as to form a hinge. The protector, when not in use, shuts up and occupies a very small space. It is claimed that 24 dozen can be put into a flour barrel. They are easily made, but are sold by the dozen very much cheaper than one can afford to make them.

How to Improve a Meadow.—"S.," Seymour, Conn.—Harrow it thoroughly, sow on some fresh grass seed this spring. Pile or compost your manure, putting in a half bushel of bone-dust to the ton of manure, turn it two or three times, and apply it to the meadow at the rate of 20 tons per acre. Or, if more convenient, use good Peruvian guano or superphosphate of lime, broadcast, at the rate of 400 lbs. to the acre, during rainy weather this spring.

Good Pigs.—Porter Frisbee, Secretary of the Delaware County (N. Y.) Agricultural Society, writes, that at their annual meeting they had a good show of grains, seeds, dressed meats, etc. Five spring pigs were shown—three of them, 10 months old, weighed, dressed, 446, 354 and 332 lbs.; and two pigs, of 9 months old, weighed, dressed, 371 and 338 lbs.

Bark Louse.—D. B. Boyer, Montgomery Co., Pa. Yours is a bad case of the Oyster-shell Bark-louse. The eggs are under the scales, and will hatch in June. If this tree is in an orchard we should cut it down and burn it; and give close attention to the other trees upon which you say it is "starting." We do not commend Mr. Norris' plan of painting trees "from stem to stern," but your tree is good for nothing else but to burn, or devote to some such desperate experiment.

Floral Exhibition at Charleston, S. C.—An exhibition will be held by the Charleston Co. Ag'l and Hort. Soc., from May 1st to 10th, and liberal premiums are offered for the leading classes of flowering plants as well as for baskets, bouquets, strawberries, etc. H. B. Holbeck is Secretary.

Corn vs. Wheat in Virginia.—"H. G.," Augusta county, Va., writes: "My farm is a sandy loam, excellent for corn, but rather too light for a maximum crop of wheat. I can raise from 40 to 60 bushels of corn per acre, while the same land rarely yields over 20 bushels of wheat, and often less. If we attempt to push it beyond this, it falls down and does not fill well; but it brings fine clover." We can see no reason why such land cannot be made to yield 30 or 35 bushels of wheat per acre. Underdrain where needed, make the land clean, so that there shall be no weeds or grass in the wheat—raise more clover and keep more sheep. If this does not give stiffer straw and a well filled ear, try lime.

Grafting the Hickory.—Hickory nuts vary much in their wild state, but the difficulties of propagation have prevented the multiplication of the choicer specimens. Mr. David B. Dickinson, having tried various methods of grafting without success, hit upon the following, which allows him to propagate the hickory with satisfactory results: Early in the Spring he grafts the stock, which should be small, very near the surface, or, if possible, below it. The graft is waxed in the usual manner, and then the earth is heaped around to cover all of the cion except the upper end. Mr. D. has grafted trees now coming into bearing, from which he brings us specimens of the nuts.

How Crops Feed—A Treatise on the Atmosphere and the Soil as Related to the Nutrition of Agricultural Plants, with illustrations; by Samuel W. Johnson, M. A., etc. New York: Orange Judd & Co. Professor Johnson's work, "How Crops Grow," is devoted to the chemical composition of the plant and the changes which take place during its life. Not only has that work received the highest commendations in this country, but it has been republished in England under the editorship of two of the professors of the Royal Agricultural College, and it is being translated into German under the auspices of Liebig. As a companion to "How Crops Grow," we have a work by the same author entitled "How Crops Feed," in which are given the latest researches upon the relations of the atmosphere to plants, and the origin and composition of soils and the offices they perform in the nutrition of crops. It is sufficient to say of the present work that it is marked by the same thoroughness and clearness that characterized its predecessor, and is, like that, the best work upon its subject in the language. As the author says in his preface, "His office has been to digest the cumbrous mass of evidence in which the truths of vegetable nutrition lie buried out of the reach of the ordinary inquirer, and to set them forth in proper order and plain dress for their legitimate and sober uses." Those who would study the principles which underlie all correct agricultural practice can have no better aid than these works will afford them. A third of this series is in preparation, which will treat upon manures and fertilizers. Price, $2, post-paid.

Rosebugs on Grape-Vines.—J. McCoy, West Va.—We know of no better way to treat the rosebug than to shake them off early in the morning, while they are dormant, catch them on a cloth and put them in the fire. The netting you speak of might do for a vine or two, but it would be too expensive on a large scale.

Cropping an Orchard.—"J. B. H.," Rancocas, N. J.—The soil of an orchard 16 years old should be given up to the trees, and instead of taking anything off by planting soiling crops, it would be much better to put fertilizers on to it. We know that it is the custom to mow or otherwise crop the orchard, and we know it is also the custom, in places where the practice prevails, to complain that fruit trees do not do well.

Peaches in Indiana.—W. W. Borden, Clark county, Ind., states: "The night of Feb. 20th killed the entire peach crop in this vicinity. Such is the report from the high lands (the Knobs), by those extensively engaged in peach culture. In the valley the result is about the same. The peach buds were very much swollen, and the lilac buds were bursting. The thermometer indicated 3° below zero."

"Shot Land" in Kentucky.—"J. F. F." writes: "I have about twenty acres of what we call 'Shot land.' If it were all together I would probably put it in some kind of grass, but it is scattered over my farm. The soil consists of pebbles from the size of a large buckshot down to that of a pin's head, nearly round, hard, but it can be cut with a sharp knife, exhibiting a dark iron-ore appearance on the inside. They are in some places very thick on the ground; and the thicker they are, the less the land produces. It appears to be unable to retain ordinary manure."—Probably the best course would be to plow and seed to red clover encouraged by plaster, and calculate to turn under two or three crops of buckwheat, clover, or corn before it would begin to look like good soil or bear other crops.

Inland Fisheries.—It is gratifying to notice the steady progress made in some States in stocking streams and ponds with fine kinds of fish. All the New England States have commissioners who are active in investigating and devising means for multiplying and introducing fish into their streams, lakes and ponds. We have received from the Massachusetts commissioners their report to the Legislature for the year 1869, which is an instructive document to those interested in this subject, as it details both successes and failures. The names of the New England commissioners are given, and we print one for each State for the benefit of persons in other States desirous of inducing their legislatures to take action in fostering inland fisheries: Chas. G. Atkins, Augusta, Me.; W. A. Sanborn, Weirs, N. H.; A. D. Hager, Proctorsville, Vt.; Theo. Lyman, Brookline, Mass.; W. M. Hudson, Hartford, Conn.; Alfred A. Reed, Apponang, R. I.

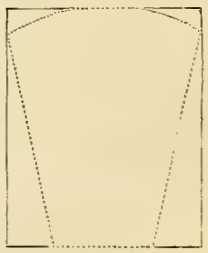
How to Apply Manure.—E. Taylor, Michigan, asks: "What shall we do with our barn-yard manure? George Geddes says plowing it under 10 or 11 inches deep is the poorest way to apply it. This has been our plan ever since I can remember. We sow wheat after corn, then clover two years, and then corn again, and so on *ad infinitum*. Now, what shall we do with the manure?" Do as you have been doing, if it does well, and never mind the agricultural doctors. If the corn does not get the benefit of the manure the wheat will. But *do* you plow 10 or 11 inches deep? Measure and see if the furrow slice is over 8 inches thick. Most people think they plow 2 or 3 inches deeper than they really do.

Plaster on Clover.—"H. G.," Augusta county, Va., writes: "We all use plaster here on clover, and it increases the yield very much—in fact, I think it doubles it in most cases."

Raising Lambs by Hand.—Use the milk of a new milch cow, and let the cow be well fed, so that the milk may be as rich as possible. Put an India-rubber nipple on a glass bottle; and be sure that the bottle is thoroughly cleansed with *boiling* water every day.

Clover for Pigs.—A correspondent writes: "With a good clover pasture, I can easily make a full-bred pig weigh 400 lbs. with 22 bushels of corn."

Button-hole Bouquets.—Some time ago we gave engravings of some button-hole bouquet holders made of glass tube. A writer in a recent number of the Gardeners' Chronicle (Eng.) gives a plan which will be acceptable to those who cannot conveniently procure the tube holders. Some moss is tied to the stems of the flowers and thoroughly wetted; then the stems are surrounded by a piece of oiled silk of the shape and twice the size shown by the dotted lines in the accompanying diagram. This is bound by means of a thread, and will prevent evaporation from the moss.



Allen's Catalogue.—Among the numerous American and foreign illustrated catalogues we have from time to time received, none equals in completeness and fullness of illustration the volume recently issued by R. H. Allen & Co. It embraces tools, vehicles and machines used by the Northern farmer and by the planters of the South, of Cuba and South America, by nurserymen, gardeners and fruit raisers, by brick-makers, carpenters and others; implements for draining, for ice cutting and handling, and a great variety of household articles, dairy implements, apple-parers, etc., etc. It includes scales, pumps and hose, edge tools, bells, and even thorough-bred stock—and almost everything is pictured. The price asked is $1, and this is refunded with the first order. This offer to refund has given rise to some exhibitions of shrewdness almost past credence. For instance, a person in Belmont, Ohio, sends for the book and $1 worth of sundry seeds, saying; "I see you propose to refund the price of the book on receipt of the first order; and, as you propose to pay postage on the book, you may send the *amount of postage* in peas, box the book and seeds and send by express." The order was filled.

Burning Bones.—"A. J. R." Rees Corners, Md.—Bone ashes are useful, certainly; but there is a heavy loss of value in burning them. A bone mill is a pretty heavy affair—Stewart's, one of the best, costs $1,000. Bones may be slowly reduced by being broken with a sledge, and then mixed with fresh wood-ashes kept moist for two or three months. When overhauled the heap should be mixed with earth, and the still hard bones thrown out to be worked over again.

Climbing Fern.—C. C. Schenck informs us that this plant, figured in Jan. last, grows abundantly upon the Cumberland Table-lands in Tennessee. It is known there as "Wild Pea-vine," and the starveling cattle feed upon it in the absence of better food.

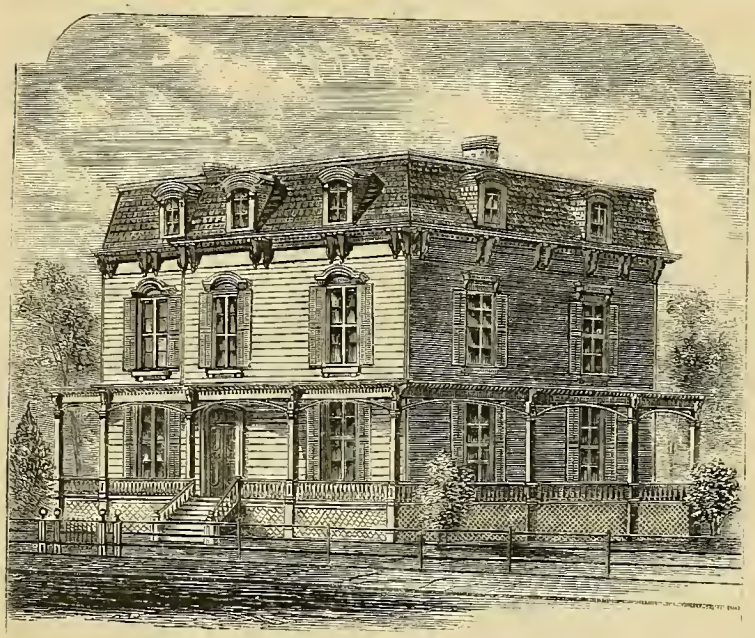


Fig. 1.—FRONT, OR SOUTH-EAST, ELEVATION.

A Convenient Country or Village House,

Having the "Modern Improvements" of Gas, Hot and Cold Water, Bath-room, Water-closet, Warm Air Furnace, Speaking Tubes, Bells, Dumb-waiters, etc.—(all of which, except the Gas, are available in Country Houses generally).—Cost, $7,000 to $8,500.

The demand upon us for hints and suggestions on building and improving houses, is becoming very great. This is hardly to be wondered at, when we remember that there are in this country some Forty Millions of people, all of whom need some kind of shelter in the form of a house. We will try to do more than hitherto, towards supplying practical information. Perhaps the best way to do this is, to take up successive plans and describe them, weaving into the descriptions various suggestions. Some of these plans will furnish exact models for those having no experience in building, and no favorite plans of their own. Usually, however, these descriptions will serve merely as suggestions.....Our Senior Publisher has for several years kept one or more houses in course of erection, not as a source of profit—for they are sold at *cost*—but partly as a matter of pleasant pastime or source of pleasure in exercising a natural mechanical taste, and partly, to gain information that may be useful to our readers, by practical *experience* in working out plans. In March of last year, we published a description of one of his houses costing $12,000. These houses were further improved upon in two others, costing about $13,000 each, having more piazzas, circle head or arched doors and windows in the first story, and one foot larger each way. Last month we described those, alike in plan, but varying a little in size, which cost $5,100 to $5,500. These prices are exclusive of the ground. We now give plans of those costing a little over $8,000. Mr. J. is also thinking over some plans (for testing by actual trial) of houses to cost respectively $1,200 to $1,500 each; about $2,000 each; about $3,000 each; and about $4,000 each.

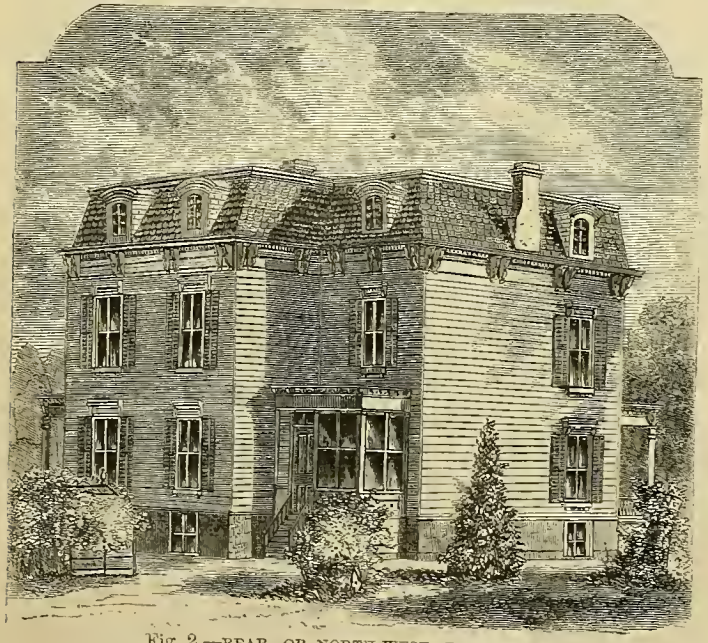


Fig. 2.—REAR, OR NORTH-WEST, ELEVATION.

Fig. 1 shows the **Front,** or South-east. **Elevation;** this stands on a corner, but back from the streets, with the Piazza extending parallel with both the streets.

Fig. 2 shows the **Rear,** or North-west. **Elevation.** For notes on kind of siding, roofing, hight from ground, filling in walls, painting, etc., see notes last month, pages 88-9. Gas Pipes extend to every room and hall, from the basement to the 3d story. Color, very light gray.

Fig. 3. Basement.—Hight in clear, 8½ feet. The walls are of Brick, with hollow in middle, and rise about 4½ feet above the ground surface. *Aa*, the Kitchen, is of ample size, having: *r*, a 9-inch "Victory Range" with water-back, and by its side a pot and shelf closet. *Cc*; a Sink, *v*,—with Suction Pump, *p*, drawing water from outside reservoir through a tin-lined lead pipe; a Pantry, *Cc*, and a Dumb-Waiter, *dw*, to the butler's pantry above: Speaking Tubes, *s,s*, one to dining-room, and one to family chamber (*F*, fig. 5).... ..*Bb* is the Lanndry, having Stationary Wash Trays (or tubs), *t,t,t*, supplied with hot and cold water stop cocks, chain-plugs, and outlet pipes with steuch traps; a Suction and Force pump, *n*, which draws cold water from the reservoir for the wash-trays, and when needed in dry weather, forces water to the Tank (figure 6). The pump is supplied with an air chamber, and a valve to prevent drawing water from the tank, as shiftless "help" would be inclined to do. *Z* is a 40 gallon Copper Boiler, put here instead of in Kitchen, for heating. This is of course connected with the range water-back, and has waste-pipe and stop-cock at the bottom, to draw off any sediment that may collect at the bottom in the course of time, if the water be not absolutely pure. It is of course kept full by a pipe from the tank. *Ee* is a milk or food cellar, plastered and finished off like *Aa*, *Bb*, and *Hh*. *Dd* is a general or vegetable cellar, and *Ff* a coal cellar. *Oo* is a 22-inch "Oriental" Base-burning Furnace, (see advertising columns), with door opening into *Ff*, and man-hole door in *Hh*, for supplying water to vapor pans. A door from the main Hall, *Hh*, opens back into the basement Area and Stairs. A Closet, *c*, is put under the stairs—the rule being to put closets wherever they can be worked in, throughout the house, which all housekeepers will value. The tin pipes conveying warm air to the 2d story, are carried up through the partitions, with iron laths on each side. These are made by cutting strips of sheet-iron 2 inches wide, bending the two edges over to hold the mortar, and nailing them upon the studding. This prevents any possibility of firing the wood-work. Too much care cannot be given to keeping all hot air pipes nearly an inch away from any wood-work, and lining all wood near them with tin, for absolute safety.

Fig. 4. First Story.—Hight in the clear 11 feet. A *Piazza*, 8 feet wide, extends around two sides, and another (Area 12½x6 feet) is enclosed in sash—a cool resort in hot weather.....The *Main Hall*, *H*, is sufficiently wide for a house of this size, and with the double doors on each side gives a very much more spacious look to the whole house, on entering, than if it were only the usual width of 6 feet. The *Vestibule*, *V*, is shut off by glass doors.....The size of the main *Parlor*, *P*, was adopted after much measuring and inquiring among housekeepers of good taste and judgment. The front double windows open down to the floor of the Piazza. The chimney has a statuary or white marble mantle, grate and summer piece. *r*, near a square, here as elsewhere throughout the houses, indicates a register and warm air pipe from furnace. *Bk* is a bell-pull to the kitchen. In this room, as in others, double ventilators, one at the baseboard, and one with cords placed near the ceiling, connect with a flue in the wall. (When heating up a cold room, close the upper and open the lower ventilator, and the warm air rising to the ceiling soon forces the cold air out through the lower ventilator. When desirable to remove the heated, rarified, or impure air from above, the order of opening is reversed.).....*R* is the "*Reception Room*, or Smaller Parlor, or "Living Room," with pantry or closet, *p*, Italian Marble Mantel, and Grate, etc., and warm air register, *r*. *Bk* is a bell to kitchen.....The *Dining-Room*, *D*, has pantries or dish-closets, *p,p*, at the ends, with an arch thrown over, and side brackets or pendants. This is ornamented; it breaks up the box-like look of the room, and has the appearance of a Bay-window. The *Butler's pantry*, *bp*, has an eleptical plated copper basin or wash sink, supplied with hot and cold water cocks with elevated, curved discharge pipe, and waste pipe and trap below. This is convenient for washing silver, and China or other dishes not to be sent below. The Dumb Waiter, *dw*, opens into this pantry, so that food can be brought up from the kitchen and prepared for the table out of sight of the dining-room; and soiled dishes are taken here to be sent down. (The elevator is suspended in the center by weight and cord over a pulley at the ceiling, for which there is room, as the shelves do not need to rise more than 4½ or 5 feet above the floor.) *Sk* is a speaking tube to kitchen; *Sc* one to the family chamber; *Bk*, a bell-pull to kitchen; *Bh*, a bell-pull to 3d story hall to call down servants or others when desired.

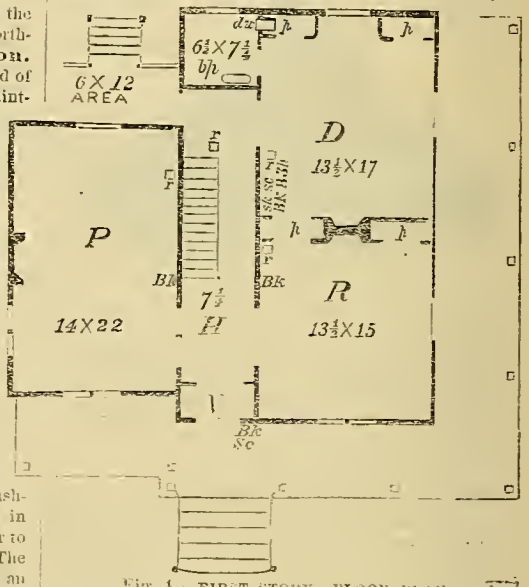


Fig. 4.—FIRST STORY—FLOOR PLAN.

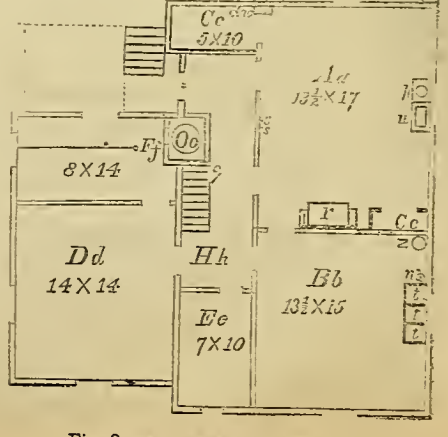


Fig. 3.—BASEMENT—FLOOR PLAN.

Fig. 5. Second Story.—Hight in clear, 9½ feet. The *Family Chamber*, *F*, opens into a dressing-room, or bed-room, *O*, which will take in a full-sized bed by the side of the door. (This room, *O*, may be used as a sewing-room, or a child's room, or a sick-room.) The Marble wash-stands, *w*, *w*, in *F*, and *G*, are placed in arched recesses, with an arched light cornice over the top, which has a pretty appearance. The rounded Marble table extends slightly into the room, and the closet beneath is cased, with a door. Marble pieces against the wall protect it from water. These basins are supplied with plated self-acting supply pipes for hot and cold water, with plated plugs, and stench traps. This arrangement of wash-stands in recesses, devised by Mr. Judd, has several advantages: The wash basins are out of the way, giving much more space in the room; one set of supply and waste pipes answers for two basins; the pipes run down by the chimney and are out of the way of frost, and the arched and corniced recesses are quite ornamental. In this room, *F*, there are, also, *Sk*, a speaking tube to the Kitchen; *Sd*, one to the Dining-room; *Sfd*, one to the front door, opening over the bell-pull (*Sc*, fig. 4), for conversing with callers at night; *Bk*, a bell-pull to Kitchen, and *B3k*, a bell-pull to the 3d Story hall to call servants in the morning, if need be. As remarked last month, these little conveniences, put in at small cost when building, save tens of thousands of steps, and much hallooing through the hall. The Housekeeper, though an invalid in her room, can thus call to other rooms and speak with the occupants through the tubes. So, also, directions may be conveyed to the kitchen and dining-rooms, before dressing in the morning. (A piece of flexible 1-inch rubber tube, attached to the speaking tubes, and extending on to the bed, will enable a sick person to talk with those in the kitchen or dining-room, though unable to rise from the pillow.) The *Chamber*, *G*, has the double closet and arch, above described; bell, *Bk*, to kitchen, register, *r*, etc.... The Chambers *M* and *N*, are convenient bed-rooms, with closets, and a warm-air register, *r*, in *N*.... The *Bath-Room*, *S*, has a wash-stand, and bathing-tub, *b*, both supplied with hot and cold water cocks, waste-pipes, and stench traps; also, a warm-air register, *r*, and gas pipe. The Water-closet, *w*, with patent basins and water arrangements, has a double cover, or seat, on hinges, so that on raising both, the broad-top basin answers for the reception of slops, and also as a urinal. It is supplied with water from the Tank in the hall above. The waste-pipe is iron, 4 inches in diameter, extending down the corner to the cellar, and out through the wall below frost, into the glazed pipe, 6-inch drain, running into the out-door privy vault. The floor under *w*, is cased with lead turned up 4 inches all

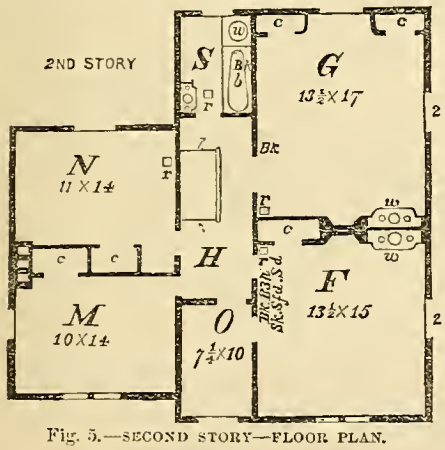


Fig. 5.—SECOND STORY—FLOOR PLAN.

round, to catch any possible drip from the water-closet apparatus. A bell, *Bk*, communicates with the kitchen. The door has sash, with translucent or ground glass, to admit light to the hall, *H*. (Both flights of stairs have a landing and turn, four steps from the top, which eases the ascent, and lowers the floor of the Bath and Tank-rooms two and a half or three feet below the hall floors.)

Fig. 6. Third Story.—Hight, in the clear, 8½ feet. All rooms in this story are finished with white plaster coat. The outer walls rise perpendicularly 3½ feet, and then incline inward with the Mansard roof, which is set more nearly perpendicular than has been the common custom in this country. The third story or attic rooms are thus almost equal, and in some respects superior, to those in the second story. The room *Z* is of ample size for a servant's room, leaving the others for general use. *T* is left undivided, and will answer for a childrens' exercise and play room, and for drying clothes on rainy days, or when too damp to dry them in the laundry. There is a very pleasant outlook from the dormer-windows. (The houses here described stand on ground 70 feet above tide-water.) The tank is 7 feet long, 5 feet wide, and 3 feet deep, giving a capacity of 735 gallons. The water from all the upper roof runs into this, and when it is full the surplus discharges through a 5-inch leader into the general reservoir. If emptied in a dry season, it is refilled by the force pump in the laundry. This, of course, keeps the the boiler (*Z*, fig. 3) always full and gives both hot and cold water to the second story rooms. A safety pipe from the top of the boiler passes up over the top of the tank with a goose-neck, and when the fire is brisk, as in a cold day, some hot water will flow over into it, which alone would prevent freezing, though with a considerable body of water, and with double lath and plastered walls around it, and with the warm air constantly rising up through the open stairways (the walnut railing and banisters

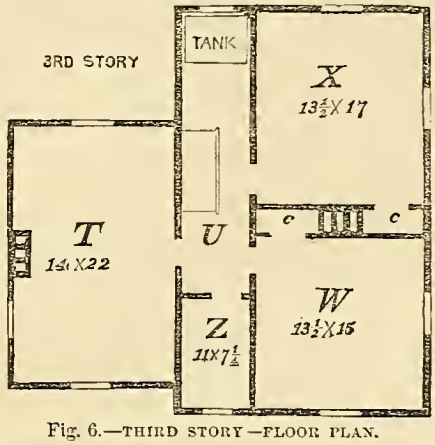


Fig. 6.—THIRD STORY—FLOOR PLAN.

extend into the third story hall) there is no danger of frost. The tank is made with a strong frame, covered inside with matched plank and lined with 4 lbs. per foot sheet-lead, strongly soldered at the joints, and the center of each side supported by plumbers' "tacks," that is, a circular segment of lead attached to the lining and let into the wood. A film soon coats the lead and prevents its solution in the rain-water, though this is of no consequence, as all water for cooking and drinking is drawn through tin lined pipes at *u*, fig. 3. Those, fearful of contact of water with lead, can arrange in the tank a gate or valve worked by a floating ball and lever, so as to turn all the water directly from the roof into the cistern when the tank is full. No spring or well water, which filters through the soil and necessarily dissolves out more or less of mineral salts and organic material, can be so pure as the "heaven-distilled" rain-water from a clean upper roof. We have used none other for many years, and would use no other. When accustomed to it, it is far more agreeable and more salubrious than any compound water drawn through the soil. If the roof be exposed to leaves and dust, a simple filter of washed sand, or sand and charcoal, attached to the cistern will remove these impurities. If many leaves are likely to fall on the roof, a wire netting should be placed over the entrance to the conducting pipe, and the accumulation of leaves be occasionally removed. (The dormer-windows give ready access to the gutters and roof.)

Other Items.—See last month, page 89, for various items, as grape arbor, siding, moulding (used in first and second stories in this house) for painting, etc., etc. There are 16 pantries or closets—an important thing to be provided in any house. One of the upper rooms may be used for a store-room, if desired, as there are in all 9 rooms that may be used as bed chambers....As a matter of due credit and a stimulus to perfection in workmanship, we give the names of the chief artisans of these and the house described last month: General Superintendent, as well as architect, and a hard worker himself, JOHN DONALD; Mason-work, Hendrickson Jarvis, and Geo. W. Lewis (1 house); Painters, Torrington & Brown; Plumber and Gas-fitter, Henry Lewis; Roof-work, and putting up Furnaces, Benj. G. Field; Sash and Blinds, Henry Christie; Stairs, etc., John L. Smith—all of Flushing; Doors, by Little, Fowler & Fleet, of New York City.

COST.—We give the actual cost of these houses, which may be taken as a comparative criterion. (These were built with special economy in purchase of material, and work, as noted last month, but probably timber, etc., will range below the rates of New York and vicinity, and skilled labor averages lower, in most of the country. For ordinary country and village residences of the same size and conveniences, a less expensive style of finish, outside and in, would often be adopted, so that the cost would range all the way from $7,000 to $9,000): Timber, $315; lumber of all kinds, $1,105; mason work and material, $1,547; carpenter work, $1,103; digging cellar, $20; digging and stoning privy vault, $25; grading, $40; cistern, $35; painting, $350; sash and glazing, $130; blinds, $85; roof, slate and tin, including gutters, and window and chimney zinc and tin, $450; plumbing, with marble and wood-work, $490; range, with water-back connection, $60; ontside drains, $50; furnace, with setting, piping, registers, etc., $300; stairs, $260; piazza steps, newels, banisters and railing, $150; arbor, privy, and lattice screens, $80; fencing, $125; sidewalks, $40; hardware, nails, locks, hinges, sash-weights, bells, etc., etc., $288; mouldings, $130; doors, kiln-dried, $140; marble mantels, $200; summer pieces and grates, $80; gas piping, $60; ventilators, $25; cartage, and many sundries, $293: average interest on outlay while building, $180. **Total Cost** of House, exclusive of land, **$8,186.**

House Building Questions.—Numerous recent inquiries about constructing wash-trays, plumbing work, tanks, etc., are necessarily delayed to a future number, for want of room, and to prepare engravings.

Sheep in Colorado.—Mr. Daniel Witter, the United States Assessor at Denver, sends us the following statement made by a gentleman of his acquaintance: "I will furnish some items of a flock of sheep owned by Mr. Crowell, numbering a little over one thousand, of the breed called the Iowa Stock sheep. Their clip last season was within a trifle of 4 lbs. per fleece, average, after washing. Their increase per annum, Mr. Crowell informs me, is 90 per cent, and to-day, of his stock, there are eight hundred fit for the butcher's stall. Many of these sheep when driven here were afflicted with foot-rot, and other diseases that are common in the States, but they rapidly recovered in this climate, and now no sign of disease exists among them. Mr. C. says this soil and climate is a certain and speedy cure for foot-rot. The dry earth and alkali that exist on the surface seem to be the natural remedy. The pure water, excellent climate and nutritious grasses are the great mutton and wool producing secrets. The time is not far distant when the Arkansas valley of Colorado will contain millions of the finest sheep in the world."

Harris on the Pig.—Mr. Joseph Harris, of Rochester, has long been a raiser of thorough-bred pigs, and has experimented largely in crossing these animals on the common swine of the country. Mr. H. now presents, in a neat volume of a little over 200 pages, an excellent manual upon the subject. The various foreign breeds are described and their qualities discussed, as are those breeds which are considered to be purely American. The principles of breeding, the care of young pigs, feeding, fattening, the construction of piggeries, and other pertinent matters are treated with satisfactory fullness. The work is illustrated by numerous engravings of the different breeds, plans of houses, troughs, etc. We have heretofore, in this department of agricultural literature, been mainly dependent upon reprints of foreign works, and we are glad to be able to present a work so well adapted to the wants of the American farmer and breeder. Published at this office. Price, $1.50, post-paid.

Bad Smelling Cisterns.—Mrs. "R. B. J.," Delaware.—The bad odor does not arise from the cement, but from the organic substances washed into the cistern from the roof. The remedy is to clean the cistern and wash it out, and then to have all the water that flows into it filtered. For the present a filter may be prepared thus: Take a keg holding half a barrel or more, put in 6 inches of clean coarse gravel, upon this 4 inches of sand, then several inches of freshly heated charcoal, pounded small, with the *dust* blown out, to be covered with 4 inches of sand and 6 of gravel. The water is poured in at the top and drawn off at the bottom as wanted. A coarse bag, filled (while wet) with hot charcoal broken up somewhat, and suspended over a cistern or well, will often destroy bad odors and flavors in the water.

Improving Hogs.—"P. P.," Kuma, Ill.—You cannot do better than to use a thorough-bred Essex or Berkshire on your large, grade Chester County sows. It will improve the quality of the pork and give more for the food consumed.

Will it Pay to Raise Cattle?—B. L. Tudor, Ontario, asks if it will pay to raise cattle when they sell at from 3c. to 6c. per lb. in gold—oats selling for 30c. per bushel and hay $8 per ton, and other things in proportion, with good pasture in summer?" It will pay better than raising oats and hay and *selling* them at these prices. But be careful to get cattle that will sell at 6c., instead of 3c. per lb.

What are the Best Roots to Raise for Milch Cows?—Parsnips and mangel wurzels. For feeding late in the fall and early winter, nothing is superior to cabbages. But the cows should have bran and meal, and hay, corn-stalks or straw in addition. In this climate we cannot afford to raise root crops and cabbages for cows unless we adopt high breeding.

How to Manage a Farm of Seven Acres.—A subscriber of the *American Agriculturist*, in Pennsylvania, who has hitherto been a mechanic, has bought seven acres of land that have been in grass and not plowed for 20 years. He wants to raise small fruits, to keep two cows, and proposes to raise cabbages, etc., to feed them on. He has had "no experience in working the soil, and has to depend on books and papers for information." We would not discourage him, but he must not expect to obtain large crops the first season. His first aim should be to get the land underdrained, clean and rich. Buy clover hay and bran for the cows. This will make good milk and rich manure. Compost this manure and any other material than can be obtained, with bone-dust. In the meantime break up a portion of the grass land, and plow it and work it two or three times, and next spring put on the manure at the rate of 20 tons per acre, and plow it in and harrow thoroughly. The land will then be ready for anything. For cabbages use about 300 lbs. of superphosphate to the acre. Keep the land constantly stirred, and a good crop may be expected. The probabilities are, however, that the cabbages will be worth more to sell than to feed out. If so, sell them and buy clover hay, bran, oil-cake, etc., for the cows. It must be your constant aim to make rich manure. You can do nothing on a small farm without it. With it, and clean culture, you can do everything.

Sap Spouts.—"M.," Bainbridge, O., says: "We have been interested in Mr. Chamberlain's articles on sugar making, published in the *Agriculturist*, but think him behind the times in using the wooden spout, though I see he is going to try the metalic ones. He can get all the wooden ones he wants among the farmers here, for carrying them off. We use the tin ones here almost exclusively. They are not so liable to sour, the sap all running out. Sap will start quicker and trees keep fresh longer. Many do not cut the trees over, the entire season. Besides, they are not bulky, only 2½ inches in length, and one can carry enough to tap a large bush in a common pail. They have worked their way against strong prejudice, until now nearly all in this section use them."

Essex Pigs.

The Essex is the largest of the small breed of pigs—larger than the small Yorkshire, or Suffolk, or small Berkshire. It is, in fact, what is now known in England as a medium or middle breed. At twelve or fourteen months old, we have had them dress over 400 lbs. They are entirely *black*, but when dressed are as white as the whitest. Their flesh is remarkably firm, and the lard of the best quality. They have small bones, small upright ears, short snout, good cheek and shoulders, square bodies, short legs, and capital hams. They are remarkably compact, and appear much smaller than they really are. They are the quietest and most gentle of all pigs; are good breeders, and mothers. But their crowning excellence is their purity of breed—and, as a consequence, they impress their good qualities with great force on any common sows with which they may be crossed.

They will improve any breed with which they are crossed. We have crossed them with the large Berkshires, with perhaps a slight reduction in size, but with a marked improvement in form, fattening qualities and early maturity. Crossed with a large, coarse, Chester White sow, we get pigs either all black or black-and-white. For large, common pigs to be kept until they are a year or eighteen months old, this cross is admirable. For smaller pigs, with less bone and offal, and that will fat at nine months or a year old, another cross with the Essex is desirable. A third cross would give pigs almost as fine-boned as the pure Essex. Such pigs can be fattened at four or five months old, and afford the choicest and most delicate of fresh pork—an article as yet almost unknown in our general markets, but which, when once known, is sure to command good prices.

From the smallness of offal and exceedingly quiet disposition, the Essex are easy keepers. They are good graziers. We know of no breed superior to them in this respect. With the run of a good clover pasture, well-wintered grade or thorough-bred Essex pigs will keep in fine growing condition all summer, and if allowed in such a pasture, two or three ears of corn each per day, with access to fresh water, will grow very rapidly, and be at all times ready for the butcher. This is the cheapest way of making pork. For the mere purpose of making pork we would not recommend the thorough-bred Essex. They are too fine and delicate. Their great value consists in their capacity of improving any of the large, coarse breeds, or in fact, any kind of common pigs. For this purpose they must be bred *pure*. What a farmer needs to improve his stock is *thorough-bred* males. And in pigs there is no breed more thoroughly established than the Essex. Engravings of some excellent specimens of this breed are given upon the first page of this number.

Tobacco Culture.

There is no crop that can be raised upon the farm with only farm hands and appliances that is more profitable than tobacco. Every year the knowledge of the great profits gained by experienced cultivators leads novices to attempt and fail. Every year there are many farmers who over-estimate their ability to take care of the crop they prepare for and plant, and hence meet with loss. No inexperienced person should attempt to raise a large patch, and whoever raises it should regard the crop second to none, but always attend to it, even if others suffer. A good crop is 2,000 lbs. per acre; this, at 25c. per lb., would bring in $500 per acre. Were $200 per acre sacredly applied to the purchase of manure, and the tobacco cultivated two, and never more than three years on the same ground, and made to take its place in a regular rotation, we have no doubt this exhausting and labor-taxing crop would be a very beneficial one to both farms and purses in sections favorable to its growth.

Tobacco Seed-Beds.—The preparation of the seed-bed should be commenced as early as the frost is out of the ground. A warm spot with a southern exposure, often with a fence or building upon the north, is selected, the soil being a fine, deep, garden loam, rich and mellow. One square rod of seed-bed furnishes, under almost any circumstances, many more than enough plants for an acre. A heavy coating of well rotted hog-pen or other manure is applied and forked under, leaving a rough surface; upon this straw and brush, to the depth of six inches or so, are spread and set on fire, provided the land is not dangerously near some building. This kills the weed-seeds to the depth of about three inches, and leaves a coating of ashes upon the surface, which may then be raked smooth, with a gentle slope to the south. If the nights are frosty and the weather unfavorable, the ground may be left rough awhile, and it is often worth while to apply a dressing of guano or a superphosphate before finishing off the bed. The best way to apply guano is in solution, and barn-yard liquor is equally good. Liquid manure may be put on very strong before or when the seeds are sown, but not after they germinate. As soon as the soil is warm, roll the bed and rake it over. Mix one table-spoonful of seed with a quart of fine sifted soil for each rod, rubbing the whole through the hands, and sifting it, again and again; divide it in two or three parts, and sow each over the whole bed broadcast, and then roll it, or pat it over with a board or a snow shovel. If the weather is warm and dry, water it with a sprinkler. The seeds start slowly and irregularly, and may be encouraged by occasional watering with dilute manure water. The young plants are often attacked by a little black fly, which is driven off by occasionally sifting wood-ashes lightly over them. The best seed for the Northern States is doubtless that of the Connecticut Seed-leaf variety. Before the seeds come up, all weeds that show themselves should be pulled. A bed 4 feet wide and 66 feet long contains one square rod of land. If several acres are to be planted to tobacco, it would be well, perhaps, to calculate that three beds would supply plenty of plants for four or five acres, and sow them at intervals of a week apart, that one or the other might escape unfavorable vicissitudes of weather.

The Relations of Tobacco to the Soil.—The repeated analyses of tobacco, and of the grains of wheat, corn and other crops, demonstrate that in cultivating it for market we remove as much of the constituents of the soil with one good crop, as would be removed by a dozen or fifteen crops of our ordinary grains. As an offset to this fact we have another, viz: The actual amount of manure added to the soil to insure a fine crop of tobacco is not more than twice as much as would be required to produce first-rate crops of wheat or corn; and with this application, good crops of "the weed" are taken year after year. Two things are certain—1st. The manure supplies directly but a portion of the constituents of the tobacco ash; 2d. Those which are lacking are supplied by the soil, which is acted upon by the manure, by water, by the air and by tillage, by all of which, these anti-constituents are brought into an available condition. When the soil ceases to yield those constituents (particularly potash) which ordinary manure does not supply in sufficient quantity, the tobacco crop will inevitably fall off. In some soils this comes after a few years; but by judicious rest and cropping with other plants, and proper manuring, tobacco culture will again be profitable.

What Crops Should Follow Tobacco?—"L. A. C."—Tobacco leaves the land in admirable condition for a crop of wheat, to be followed by grass, which will do well for several years. Almost any of our common crops will do well after tobacco. Roots find potash enough. Potatoes, if planted on good tobacco land, which has not been over-cropped, even two years in succession, will usually indicate no lack of this substance, though peculiarly sensitive to its absence. Ruta-bagas (Swedes) are favored by the amount of the phosphates left as a residuum in old tobacco land, and these, it is well known, are peculiarly advantageous to all the turnip family. It is for the same reason that cabbages are frequently cultivated after tobacco with good success.

Norway and other Oats.—Some time ago we asked for the experience of our readers who had tried the Norway oats. We condense the statements received, but neither color nor qualify them:

Luther Bailey, Jewett, N. Y.—Sowed 1 bushel 6 quarts; harvested 60 bushels, and thinks he can raise 100 bushels.

John Baxter, New Lisbon, N. Y.—Bought of Jones & Clark half a bushel, which cost $8; "found them the most disgracefully, dirty seed ever vended." Sowed on the best land he had, and they turned out to be "Horsemane" oats, which he could have bought for 60c. per bu. at home.

John J. Horton, of White Plains, N. Y.—Sowed late and on inferior land; they grew well, 5 feet high, with heavy heads; were the best he ever raised. After they were ripe they were not lodged by two heavy storms.

Clark L. Horton, Coventryville, N. Y.—Sowed 15 lbs.; harvested 19 bushels by measure (23 by weight), weighed nearly 39 lbs. per bushel; grew to 5 or 6 feet high; land rich. A terrific storm prostrated them.

C. C. Phelps, Vernon, N. Y.—Seed of Heffron; oats stood 5 to 6 feet high; did not lodge; were cut by wire worms; yielded 84 bushels per acre.

Addison Ely, Elizabethtown, Pa.—Seed, from Jones & Clark, very light; sowed on good ground; yield, very poor.

John K. Busteed, Union, N. Y.—Tried Surprise, Norway, White Norway and Swedish, and is greatly in favor of the Surprise for earliness and weight per bushel.

Wm. M. Blakewell, no Post-Office, probably in Pennsylvania—Sowed 1 bushel black oats, which weighed 42 lbs.; sowed on fair land with 175 lbs. of guano; harvested 16 bushels weighing 28 lbs. per bu. The color changed from black to gray-and-white; greatly inferior to common oats.

John T. Bramhall, Falls Church, Va.—Sowed, rather late, 4 quarts clean seed, which weighed 37 lbs. to the bushel; harvested 3¼ bushels weighing 25½ lbs. per bu.; grew tall, and lodged when nearly ripe. Thinks "the Norway a first-class oat, but not all that was claimed for it."

Edward J. Ivy, Hampton, Va.—Bought 1 quart of seed; got 75 qts., and left 5 or 6 in the straw. Says they will yield three times as much as any other oat he ever saw.

James E. Blake, Granville, Ill.—Says he never saw their equal; speaks in high terms of the straw as fodder.

R. F. Brumfield, Kirkmansville, Ky.—Bought 1 quart, which came torn open and one-third gone; sowed on 100 yards of low land: they were hurt by being flooded and by the drought, yet he gathered 3 pecks which he "would not part with for anything in reason."

J. W. Speering, Humboldt, Kan.—Sowed 1 bushel and 2 lbs., and estimates his crop at 100 bushels. Says, "They are far superior to any oats I ever saw."

Wm. Woodford, Fremont, O.—Writes, he sowed half a bushel Norway oats; grew about 6 feet high, and yielded 25 bushels—more than twice as much as common oats.

Philip C. Tussing, Winchester, O.—Sowed 13½ lbs. the 16th of April, and thrashed 30 bushels from the same.

Horace J. Taylor, Claridon, O.—Raised from 1 seed 5,155 seeds on 21 heads; the largest head had 406 seeds, the smallest 134; 4 husks contained 3 seeds each. They stood straight, about 5 feet high; straw very large."

C. J. Dietrich, Grand Rapids, Mich.—"Drilled in, on rather heavy soil, 32 lbs. on just one acre. A tremendous dashing rain packed the ground so hard that not more than half the seed came up; yet from what came up I harvested about 60 bushels of oats, that weighed 40 lbs. to the bushel. Straw, 4 to 5 feet high, large and stiff; none lodged; heads were very long and full. Surprise oats, in the same field, with same treatment, yielded only 40 bushels to the acre, and weighed 40 lbs. to the bushel. The Surprise is much the prettier oat, but the Norway beats them to death in yield."

H. Lorentgen reports that Gen. Israel Garrard, of Frontenac, Minn., drilled 8 acres with 1 bushel and ½ peck to the acre—(land, a black loamy soil, broke two years ago, and had last year a crop of wheat on it). The yield was a little over 960 bushels, making 120 to the acre.

J. E. Davis, South Bend, Ind.—Purchased 2 quarts of Norway oats from Jones & Clark; sowed on light soil; yield, 230 lbs., and 8 or 10 small sheaves of common oats.

Daniel Noble, Bell Plain, Wis.—Sowed 1 bu. on a piece of poor timothy sod, freshly broken up; yield, 94 bu.; weighed 41 lbs. They had been twice broken into by hogs, and badly trampled; grain thick, like barley; one stool had 19 heads with 4,341 grains.

White Norway.—E. M. Angle, Herrick, Pa.—Sends a sample. (We know no such oats.) He says they yield extremely well, from 120 to 150 bushels per acre, and weigh 45 to 50 lbs. per bushel.

White Schonen Oats.—Wm. W. Horner, of Meyers' Mills, Pa., sowed 1 pint of White Schonen oats, imported from Hamburg. Yield 4 bushels. He sowed, also, 1 pint of the Norway oats, and it yielded 2½ bushels.

Ogden Farm Papers—No. 4.

I am now preparing nine acres and a half for corn—being one-sixth of the arable portion of the farm. It will afford an opportunity for comparing the effect of two or three different conditions of preparation of the land. The soil is heavy, and before draining was excessively wet, although lying over the crown of a high ridge with slope enough to make draining easy.

About one-half of the land was seeded down in 1867, and is still in grass; one-third was in corn in '67, in roots (very poor crop) in 1868 and produced, with heavy manuring, a very fine crop of corn fodder in 1869; one-sixth produced a poor crop of hay in 1868 and a very good crop of soiling rye in 1869. Of the grass portion, a small piece that was manured in September was plowed up in October, being a strip about 20 feet wide across the field, with grass, manured at the same time, on each side of it. The manuring is being done at intervals, by strips from one side of the field to the other, and will not be finished before April. The plowing (except the small strip of grass land plowed last fall) will all be done immediately before planting, and the subsequent treatment of the land will be uniform, while its condition when I took the place was about identical. The result will show a comparison between the following conditions:—

1. Grass land, top-dressed early in the fall, and left untouched until May.
2. The same land, plowed in the fall, the manure being turned under with the sod a month after its application—heavy rains having fallen in the meantime.
3. Land that has produced a heavy growth of rye, been twice plowed after harvest, manured in the winter and plowed again in the spring.
4. Land (which before produced corn fodder) in perfect tilth, very heavily manured, plowed during the fall and winter, heavily manured again in March and plowed in May.
5. Grass land manured at various times between September and March.

The most important comparison will be between Nos. 1 and 4. The first will probably have a heavy spring growth to turn under; the last will have had more thorough cultivation and exposure in the rough furrow during a very freezing and thawing winter. It is hardly possible to make any reasonable prophecy of the results, but I shall watch the experiment closely, and report the different results. If other farmers would make similar experiments, the various results in different soils and climates would furnish a foundation from which some valuable conclusions might be drawn.

One of my early ventures was to purchase a thorough-bred stallion, son of the old race-horse "Wagner," and of "Fanny King" (a daughter of imported "Glencoe"). I had three farm mares to breed from, and could hear of but one thorough-bred stallion in the State. To send the three mares to this horse would cost, for service alone, $300. So I bought "Dallas." He combines more fully, than any other horse I have seen since "Hero's" time, the qualities of good temper, good form, good bone and good blood, which are most desirable in a sire. Hoping to secure the patronage of my neighbors, I fixed the price of his service at $25—to insure. I counted without my host; for my neighbors continued to send their mares, at $3 a leap, to a cold-blooded trotter. Dallas has received a few mares from a distance, and a few from the neighborhood. Although at the price fixed I have received less than the cost of keeping him, I feel fully compensated by the two mare colts, now one year old, that I have in my stable, (one mare produced a dead foal) and I think that they are enough finer than my neighbors' colts to convince them of the economy of breeding only to a thorough-bred sire. My own mares are to foal again this spring, and I have laid a foundation for a stock that will be cheap at its cost.

Mr. Edward Curran of Utica, asks whether a Jersey bull would be the best stock getter for the milk and cheese dairies in his section. By no means. The Jersey blood is valuable, mainly, because a large quantity of milk, and a proportional production of *casein*, have, in this breed, been subordinated to the production of cream and butter. A Jersey bull would impart to the stock of a cheese farm, a quality that would be little prized, and would probably lessen the value of the stock for the manufacture of common cheese. If you want a sure annual average of over 200 lbs. of butter from moderate feeding, the nearer you get to having a herd of pure Jerseys, the more likely you will be to secure your object, and the farther you will get from a great flow of milk, and a great yield of cheese.

I have received several letters from readers of the *Agriculturist* asking how they can get my high prices for butter. The question is a difficult one to answer. It depends much on the nearness of a good market, that is, of people who are willing to pay an extra price for extra quality; but it depends still more on the extra quality itself. The cows must be good, the feed must be good and regularly given, and above all, the dairy maid's part of the work must be thorough and untiring from the time the milk is brought into the house until the butter is sent out of it. The essential qualities of good butter are, that it should be worked to a firm, waxy texture; perfectly dry, of good color, and but very slightly salted. It should be put up in neatly printed lumps, and as it goes to market each lump should be surrounded with a piece of damp muslin. The most that can be said as to *flavor* is that there should be no objectionable taste, such as that of turnips or oil-meal.

If any one of these points is more important than another, it is the question of *color*—for most people taste with their eyes rather than with their palates. No butter, no matter how good, will fetch a high price unless it have a high color. In summer there is no difficulty, but *in the winter season butter is white.* I have a herd of pure Jersey cattle, the yellow pigment peculiar to whose organization has been the subject of much study. I have fed them on rowen hay, on turnips, on beets, on corn-meal, on everything, in short, that they would eat that is supposed to contain coloring matter, and I have never yet had in winter (from a dozen cows) a single pat of butter that was *naturally* more yellow than "cream-laid" paper. During the first winter of my operations, Mr. Tyler sent me from Philadelphia a pound-print of peculiarly deep-colored butter, to encourage me. He said its color was due solely to the corn-meal on which the cows were plentifully fed. He sent me the name of the maker and I visited him the next June. He told me, very frankly, that he used annatto the year around, so that his customers should not miss the summer color when he was *obliged* to use it in winter. The manner of coloring is important. I have tried various recipes, including carrot juice in the churn, and I think that nothing equals pure annatto, or rather the solid extract of annatto.

With Jersey cows, and I think with any others, while fed on succulent grass or corn fodder, it is not necessary to color during the summer season, but as soon as the color begins to pale in the autumn, a very little annatto should be added, the quantity being increased at each churning until the artificial has entirely supplanted the natural tint.

Annatto has another effect besides giving the color. It is a strong flavoring substance, and in countries where it grows it is much used in cooking on account of both its aromatic and its chromatic quality. In the dairy, it not only improves the looks of butter and cheese, but imparts a flavor that is a nearer approach to the "sweet vernal grass" taste than it is possible to obtain in any other way. The ordinary annatto of commerce is objectionable on account of its adulterations, but the pure dry extract (annattoine) is in every way desirable.

The use of annatto is very simple and easy. The darker extract being used, (there are two kinds) about $1^1|_2$ grains should be weighed out for each pound of butter to be made. This should be dissolved over night in boiling hot water, and kept in a warm place. In the morning it should be strained into the churn through a piece of fine cambric. The color given to the butter is not precisely that of summer, having a somewhat more reddish cast, but it is very rich, and the product is in every way improved by the application. Even for shipping to distant markets, the extra care above recommended will be amply repaid. There are dozens of buyers in New York City who are seeking for butter of extra quality for their retail trade, who would gladly pay even 50 per cent above the market price if they could be sure of a regular supply, no matter how small; and they will soon scent out a fancy brand.

After experimenting with various patented butter-workers, I have got one up on my own account after a model that I saw in use in Pennsylvania, and I like it better than any of the more complicated devices. It is simply a white oak table, two feet long and three feet wide, made of very heavy stuff, so as to stand firmly, one side being one inch lower than the other, with a groove along the lower edge to lead the buttermilk to one corner, from which it drips into a pail. The butter is laid on this table and worked with a blunt-edged white oak knife 12 inches long and 5 inches wide, with a projection 6 inches long at each end, for handles. The whole is made of $^3|_4$ inch stuff, worked thinner at the edges. The handles are two inches wide with rounded edges. With this apparatus the butter is worked out into a flat mass, wiped dry with a cloth containing a damp sponge, then cut crosswise and wiped again; then rolled together and re-worked—and so on until it is ready to receive the salt, which is worked in with the same implement.

My German dairy woman has taught me one wrinkle that may be new to others. When the butter has been thoroughly worked and is spread out thin upon the table, a knife is drawn through it from end to end at intervals of an inch, and then drawn through crosswise, so as to cut the whole mass into small square sections. It is then rolled together, flattened out and cut again—and again. Every cow hair in the butter that comes in contact with the knife is drawn out by it. I have never seen more than two or three hairs taken from one churning, (and it is a mystery how they came there) but with the ut-

most care that can be given fine hairs will sometimes pass through the strainer, and one of these in a pat of butter might cost a first-rate customer.

Horse Papers for Farmers.—No. 4.

It will be understood, that in the hints for the feeding of the colt from the time of his conception until he is a year old, I have had in view, not the average colt of the breeding farm, but a special animal that is intended for the personal service of the farmer and his family, for probably 20 years; an animal sprung from a noble sire and capable of a far higher development than the average work horse of the country;—not bred for sale, but expected to pay for extra care, extra food, and extra thought, by a long life of willing and efficient service. With such an animal, the question of education is hardly less important than that of food, for we not only want strength and vigor, but the courage and intelligence without which, strength and vigor will lose half their usefulness, and become a source of danger.

The horse that we have under consideration is to be the companion of our children, a helper in our labors, and a willing servant of our "women folks." These relations require that he should be docile, tractable, willing and good tempered, and the preparation for all these is best commenced when he is not more than a month old.

He should, even at this early age, become accustomed to the caresses of old and young. By the time he is six weeks old, a light halter may be put on his head, and after he gets used to this, a leading-strap may be buckled into it, and he may be very gently coaxed to follow a man who leads his mother at the same time. If he is disposed to pull back, he must be taught, then and there, that this is no part of the programme. Don't try to pull him in the opposite direction, but stand as firm as a rock until he gives up pulling and slackens the rein of his own accord. Then fondle him and induce him to step forward if possible. Perfect good temper and indomitable patience at this lesson will be worth more than a year's pounding and "breaking-in," when he is five years old. He has to learn at some time in his life that man is his master, and he will be a better horse all his days if he learns at the same time, that man is his friend. This lesson, once fairly implanted in his mind, will never be lost, unless as a result of inexcusable ill-treatment.

Mr. Charles L. Sharpless, of Philadelphia, breaks his colts to harness at the age of six weeks, and he claims that even if they never have a strap on them again until they are old enough for work, they seem never to forget this early teaching, and to take kindly to the harness from the first. He has a very light harness and a pair of small wheels, with light but strong shafts attached to the axle. Going into the pasture with his apparatus, he takes the colt by the halter and leads him up quietly with his mother, to inspect every part of the gearing.

Each part of the harness is subjected to his examination, and is then put quietly into its place, and loosely buckled. He is allowed to walk around in these until he becomes thoroughly accustomed to them. This part of the operation may require several repeated attempts, as the greatest care must be taken to neither frighten nor disgust the pupil. After he has become perfectly comfortable and "at home" in the harness, the man leading him drags the wheels about with him in the field, until he pays no attention to the shafts striking against his sides. After this, they are gently passed over his back and he is made to walk between them. Then they are passed through the tugs and he is allowed gradually to feel their weight. Then the traces are made fast and he is allowed to draw more and more of the load for himself until he has become a tolerably good harness horse.

In another instance that has come under my notice, a colt that had been taught this much was daily hitched to his drag and left to himself in a small barn-yard, and it was astonishing to see how soon he learned to manage it. In going under an open shed in the yard, the wheel caught against a post, and he turned and looked at it, and experimented with it, until, after several attempts, he backed it out of the way, and came in clear.

Of course his groom, a very careful man, watched him carefully, and took care that he did not become frightened and injure himself, but he soon learned to allow for his cart-wheels in moving about in the yard, as though they were a part of himself. At times he was allowed to amuse himself with a whiffle-tree dangling by the traces against his heels, and again with the loose traces striking against his legs. All this requires very little time and is rather an interesting amusement, than a task, and it insures an education of the young animal which no amount of rough riding and breaking-in could accomplish.

I believe that the coming generation of farmers will make more use of the saddle than their fathers do, and that no family horse will be considered perfectly satisfactory unless he is a tolerable saddle horse. Education for the saddle as well as for the harness, should be commenced with the foal. He should learn to bear the weight of a child on his back, and to carry it about without being alarmed. Both the weight and the sight of the human being in that position are novel, and should not be too suddenly presented. Of course, a colt only six weeks old should have only a very small child placed on its back. The little shaver may be taken in his father's arms and slowly insinuated into his place without danger of a fracas, although the attempt may have to be repeated many times before the colt understands what is wanted. In training, it may be set down as a universal rule, with young animals or with old, that, unless they have been at some time grossly ill-treated, they only need to understand what is wanted of them, to do it at once if within their power.

A colt that has been safely carried through its first year—well bred, well trained, and abundantly fed—starts his second year with a fair chance of making constant progress with even ordinary treatment. All that he now requires, until he is old enough for use, is good pasture in summer, and good hay in winter, although a little grain, (say two quarts of oats a day,) "to keep him going," will tell with good effect on his size and on his muscular development. He will probably be better fitted for work at four years old with it, than at five years old without it, and the saving of a year will more than pay for the extra feed.

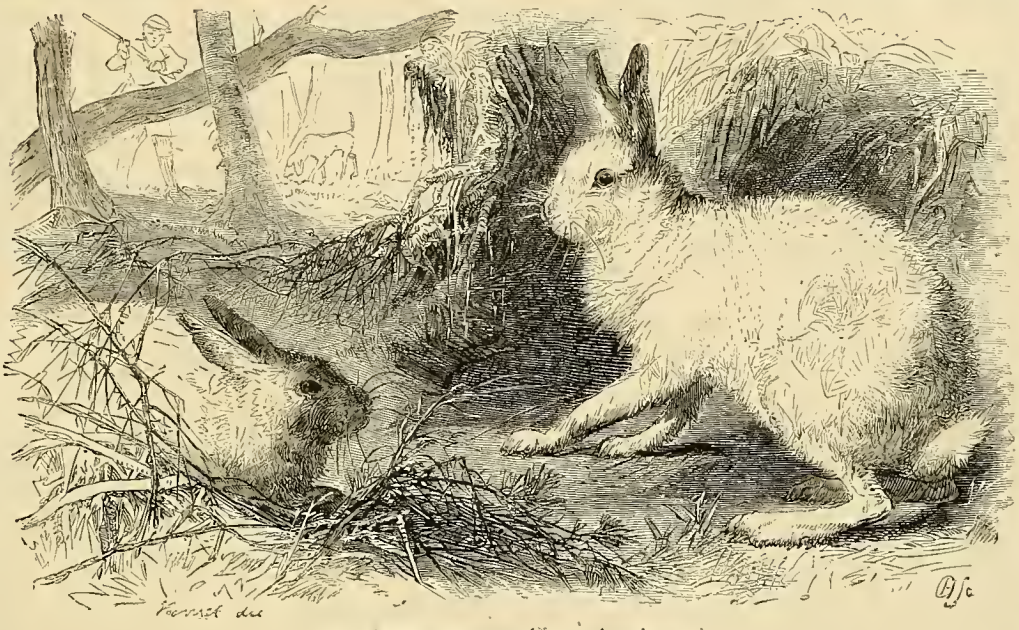
During the whole time of the animal's growth he will be benefited by being made a companion, and it will be all the better if the pasture is near the house, so that he can have daily attention. He will soon learn to come for a piece of bread or sugar, and to stand for a little combing of his mane and tail and the smoothing of his legs and back. It is hardly to be expected that a busy farmer will have much time for exercising a young horse before he is old enough to work, but any attention paid him in the way of leading or driving about (without a vehicle) will help in the final training. However well developed he may be, no horse that is not fully thorough-bred (and brought up in a racing stable, at that,) should be put to work before he is four years old.

Castration is performed with more safety, and more easily, just before weaning than at a later period; but if the colt lacks development in his fore-quarters—has too light a neck, or too low withers—he will improve in these respects if allowed to go "entire" until a year or more old. It would be useless to give here the directions for performing the operation, as it should always be entrusted to a skilled hand, and skilled hands could better instruct me than I them. All that I desire is to urge that castration *be performed.* Once in a thousand times there may be a half-bred horse raised that is worthy to be a stallion, but the chances are very strongly against him, and it would be better in the end that the race of mongrels be not perpetuated. That old rule should be ever before us: "Like produces like, *or the likeness of some ancestor.*" Let us not run the risk of producing the likeness of a cold-blooded ancestor. If we have got one service of a thorough-bred, we can get another when necessary, and my own conviction (based on some experience) is so strong that the sire should be really *thorough-bred*, that I would sooner pay $100 to have a mare, that is fit to breed from at all, served by a "four-miler" than to have her served by a half-bred for nothing; it would *pay* in the end. Any one who will look at the carriage horses belonging to even the richest men in the large cities, or who will go through the city horse markets looking for strictly fine carriage teams, will realize the fact that carelessness of breeding has made the race nearly extinct. He will see plenty of "roadsters," warranted to show a pace that is of no use except for very fast pleasure driving, but he will be lucky if he sees one really fine pair of well framed and stylish carriage horses. If he does, and if the animals are free from all defects and well broken, he will find them held at fabulous prices, even though they may not be able to trot a mile in less than six or seven minutes.

I believe that three-quarter-bred, well matched, well trained and stylish horses—such as may be raised from good, honest, cold-blooded granddams—will find, henceforth, a ready sale at $2,000 and upward per pair at four years old. I also believe that (accidents aside) such animals may be bred with certainty; and that the chances for getting more would be as great as for getting less. This sort of horse breeding would pay much better than the lottery business of breeding for fast trotting—where one horse in a hundred is worth $1,000, and one in a thousand $5,000, and nine-tenths of the balance $150. At the same time, if breeding to thorough-bred stallions became the rule rather than the exception, the average *working power* of all the horses in the country would be doubled by reason of the greater briskness, power, stamina and longevity that "blood" imparts. The question of the influence of blood on fast trotting is a disputed one. If I were to set about the production of this class of animals I would raise only thorough-breds, and develop the trotting action to the utmost in successive generations. Others, who have peculiar views about the "obliquity of the *os calcis*," advocate the mongrel theory. Without stopping to argue the question here, I may confidently assert that for the guidance of *farmers* my rule for breeding is the *safe* one.

The Northern Hare.—*Lepus Americanus.*

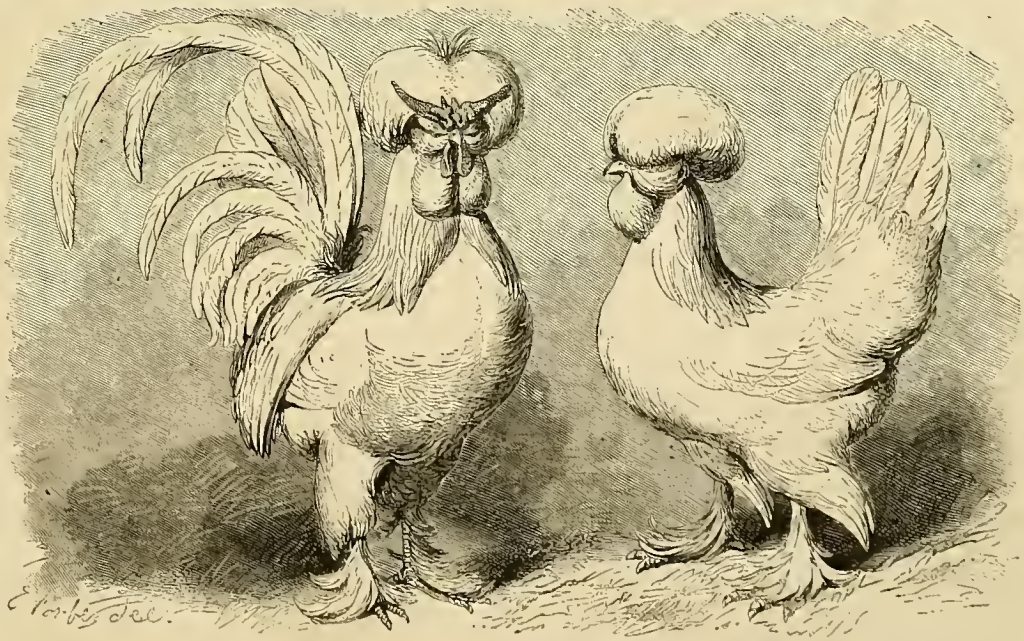
The true rabbits live gregariously, and form burrows, in which they rear their young. None of our rabbits have these habits, and the animals which, in this country, are popularly called rabbits, are strictly hares. We have, in North America, some thirteen species of hares, all of which are solitary in their habits, and instead of burrowing, make forms or nests of grass upon the ground, upon which they sit. The most common, after the Gray or Brown Rabbit, is the Northern Hare, also called White Rabbit. It is found from Virginia to Canada, and as far west as the plains of the Missouri. It is considerably larger than the common rabbit, has ears larger in proportion to the size of the head, and a longer hind foot. The feet are so thickly covered with hair, that the animal makes but little impression upon the snow. In summer, the color of the animal is of a reddish or cinnamon brown above, and white beneath the body; the short tail is sooty brown above, and dull grayish beneath. In winter, the pelage changes to white, but when the hair is parted, lead color and cinnamon color are seen below. The fur, at all seasons, has a rough and shaggy look, on which account the skins are of little value. The animal weighs from three to six and a half pounds. This hare inhabits dense swamps in winter, but in summer finds a retreat on higher ground. It is very seldom seen in the day-time, as it does its foraging during the evening and night. It forms well worn paths or runs, which it is said to follow for years, and many are taken by means of snares or traps, set in these runs. When pursued, it runs, or rather leaps, with great speed, and endeavors to escape the hunter by avoiding the open ground, doubling and turning among the thickest woods and undergrowth. It is much more fierce than the common rabbit, and when captured, bites and scratches with considerable energy. Numbers of this hare are sent to the New York market every winter, but as they are not highly esteemed, they sell for a low price. The flesh is dry and hard, and much inferior to that of the common gray rabbit. It has been stated that the hare was introduced from England into Canada, and from thence spread over a large part of the United States. This is an error, as the European hare differs from ours in many respects. It is larger, with ears longer in proportion to the size of the head, and it does not change its color with the seasons.



THE NORTHERN HARE—(*Lepus Americanus.*)

Sultan Fowls.

The Sultans were introduced from Turkey into England about the year 1854. They are an exceedingly beautiful and attractive breed, closely resembling the Polands in many of their characteristics, yet differing from them essentially in others. Their plumage is of the purest white, and they are abundantly feathered on every part, as shown by our excellent engraving.



A PAIR OF SULTAN FOWLS.

The comb is forked, at least it is in two parts, which, in the case of the cock from which the engraving was taken, so resembled a crescent, that every one was struck with the appropriateness of the combination of crescent and turban for a Turkish fowl. They have full Polish crests, and muffs or beards in both sexes. The body feathers are soft and abundant; the hackle flowing; the sickle feathers well developed; the legs fully feathered to the tips of the toes; the feathers of the hocks having stiff quills and extending back in a line with the thighs, which is called being "vulture hocked." The hens are persistent layers, rarely or never wanting to sit. They lay large, white eggs, and many of them. The breed is reputed to be easily kept, and hardy, easily confined, and useful as well as ornamental. The chickens feather very young, and hence are delicate, as is usually the case with breeds upon which the feathers come before the young bird has built up its frame sufficiently to sustain the draft upon it without becoming too much weakened. Several importations of these fowls have been made within a year or more, and naturally have attracted much attention at the exhibitions where they have been shown. The stock of Sultans in this country is small, but they have proved themselves hardy in our climate, and useful as layers. They are less than medium-sized fowls, but have plump bodies, and, if abundant, would be excellent for the table.

Osier Willow as a Hedge.

We recently saw a successful hedge grown from the Osier willow. It was strengthened at the top and in the middle by interweaving the branches, without severing them from the stock. These living ligatures became stronger every year and added to the stiffness of the fence. It was kept trimmed on the top at the hight of six feet. It turned cattle perfectly in its fourth year, and is constantly growing stronger. It was kept at its required hight by cutting annually a crop of boughs from the top for basket willow. This is a novelty in the way of growing willows, but we do not see why Osiers may not be grown just as well six feet from the ground, as upon its surface. The wands are quite as vigorous, and of as good quality. The double office this willow serves, treated in this way, would induce some, perhaps, to cultivate it, who otherwise would not think of it. The owner of this hedge peeled his wands by hand, and sold them in the market for ten cents a

pound. He remarked that he was not sure it would pay to employ men on purpose to peel willows, but as it furnished occupation for rainy days, he thought it paid. If the willows were worked up into home-made baskets without peeling, it might pay still better than to sell the rods at the present market price. They make a very durable basket, serving all farm purposes quite as well as those of oak or ash. The making of baskets is described and illustrated in the *Am. Agriculturist* for April and June, 1867.

Walks and Talks on the Farm—No. 76.

"I cannot afford to wait for clover and summer fallowing," writes an intelligent New York gentleman, a dear lover of good stock, who has bought an exhausted New England farm, "I must have a portion of it producing good crops right off." Very well. A farmer with plenty of manure can do wonders in a short time. Set a gang of ditchers to work, and put in underdrains where most needed. Have teams and plows enough to do the work rapidly. As soon as the land is drained and plowed, put on a heavy roller. Then sow 500 lbs. of Peruvian guano per acre broadcast, or its equivalent in some other fertilizer. Follow with a Shares' harrow. This will mellow the surface and cover the guano without disturbing the sod. Follow with a forty-toothed harrow and roll again, if needed, working the land until there is three or four inches of fine, mellow surface soil. Then mark off the land in rows as straight as an arrow, and plant corn. Cultivate thoroughly and kill every weed. If the ditchers cannot get through until it is too late to plant corn, drill in beans on the last drained part of the field.

Another good crop to raise on a stock farm is corn fodder. This can be drilled in from time to time as the land can be got ready. Put on half a ton of guano per acre and harrow in, and then mark off the rows three feet apart, and drill in four bushels of corn per acre. Cultivate thoroughly and expect a great crop. By the last of July the Ayrshire cows will take kindly to the succulent corn fodder, and with three or four quarts of meal a day, it will enable each of them to make 10 lbs. of butter a week.

For the pigs, sow a few acres of peas. These will do well on sod land, sown early or late, or a part early and a part late, as most convenient. Sow broadcast and harrow in 500 lbs. of Peruvian guano per acre and 200 lbs. of gypsum. Drill in three bushels of peas per acre, or, sow broadcast, and cover them with a Shares' harrow. Commence to feed the crop green as soon as the pods are formed, and continue to feed out the crop, thrashed, or unthrashed, until the middle of November. Up to this time the bugs do comparatively little damage. The pigs will thrive wonderfully on this crop, and make the richest and best of manure.

I have little faith in any attempt to raise root crops on land not previously well prepared. But as it is necessary to have some mangel wurzel and Swede turnips for the Ayrshire cows and Long-wool sheep next winter and spring, select the cleanest and richest land that can be found that was under cultivation last season. If fall-plowed the chances of success will be doubled. Plow the land two or three times and cultivate, harrow, and roll till it is as mellow as a garden. Sow 400 lbs. of Peruvian guano and 300 lbs. of good superphosphate per acre broadcast and harrow it in. Ridge up the land into ridges 2½ to 3 ft. apart, with a double mold-board plow. Roll down the ridges with a light roller and drill in the seed. Sow the mangel wurzel in May—the earlier the better—and the Swedes as soon afterwards as the land can be thoroughly prepared. Better delay till June rather than sow on rough land. The first point will be to attend to the grass land. This affords the most hopeful chance of getting good returns the first year. But no time is to be lost. Sow 500 lbs. of Peruvian guano per acre on all the grass land and on the clover, with 200 lbs. of gypsum in addition on the latter. If this is sown early enough, so that the spring rains dissolve it and wash it into the soil, great crops of grass may be expected.

"But will it pay?" My friend in New York is a very energetic and successful business man, and he has a real love for farming, and I have no sort of doubt that, taking the New York business and the farm together, they will afford a very handsome profit. Furthermore, I have no doubt that if, after he has drained it, he would cover the whole farm with 500 lbs. of Peruvian guano per acre, or its equivalent, it would pay him better than any other agricultural operation he is likely to engage in. By the time it was on the land the cost would amount to about $25 per acre. If he sells no more grass or hay from the farm than he would sell if he did not use the guano, this twenty-five dollars may very properly be added to the permanent capital invested in the farm. And in this aspect of the case, I have no hesitation in saying it will pay a high rate of interest. His bill for labor will be as much in one case as in the other; and if he uses the guano he will probably double his crops. His grass lands will carry twenty cows instead of ten, and if he raises the corn fodder and roots, he can probably keep thirty cows better than he could otherwise keep a dozen; and, having to keep a herdsman in either case, the cost of labor will not be much increased. "But you think it will not pay?" It will probably not pay *him*. I do not think *his* business would pay me if I lived on my farm and went to New York only once or twice a week. If there is one business above all others that requires constant attention it is farming—and especially stock farming. But my friend is right in saying that he cannot afford to wait to enrich his land by clover and summer fallowing. His land costs too much; he has a large barn and everything requisite to keep a large stock of cattle and sheep. The interest on farm and buildings and the money expended in labor would run on while the dormant matter in the soil was slowly becoming available under the influence of good tillage. The large barn must be filled at once, and the only way to do this is to apply manure with an unsparing hand. If he lived on the farm, I should have no doubt that, by adopting this course and by keeping improved stock and feeding liberally, he could make money. Perhaps he can find a man who will successfully manage the farm under his direction, but the probabilities are that his present profit and pleasure will come from the gratification of his early love for country life.

I had made up my mind to say no more about summer fallowing. But it is evident that the matter is not understood. An intelligent Ohio farmer writes me: "I see that you recommend fallow plowing, what are your reasons? Granting that the *immediate* result is an increased crop, is not the land impoverished? Will not the thorough cultivation of corn or potatoes answer as well?" And a distinguished farmer, of this State, in a recent communication expressed the same idea—that summer fallowing would soon impoverish the land. But if this is the case, the fault is not in the practice of summer fallowing, but in growing too many grain crops and selling them, instead of consuming them on the farm. Take two fields; summer fallow one and sow it to wheat. Plant the other to corn and sow wheat after it in the fall. You get, say 35 bushels of wheat per acre from the summer fallow. From the other field you get, say 30 bushels of shelled corn per acre, and 10 bushels of wheat afterwards. Now, where a farmer is in the habit of selling all his wheat and consuming all his corn on the farm, it is evident that the practice of summer fallowing will impoverish the soil more rapidly than the system of growing corn followed by wheat—and for the simple reason that more wheat is sold from the farm. If no more grain is sold in one case than in the other, the summer fallowing will not impoverish the soil any more than corn growing.

My idea of fallowing is this: The soil and the atmosphere furnish, on good, well cultivated land, plant-food sufficient, say for 15 bushels of wheat per acre, *every year*. It will be sometimes more and sometimes less, according to the season and the character of the soil, but on good, strong limestone land this may be taken as about the average. To grow wheat every year in crops of 15 bushels per acre would impoverish the soil just as much as to summer fallow and get 30 bushels of wheat every other year. It is the same thing in either case. But in summer fallowing we clean the land, and the *profits* from a crop of 30 bushels per acre every other year are much more than from two crops of 15 bushels every year. You know that Mr. Lawes has a field of about thirteen acres that he sows with wheat every year. On the plot that receives no manure of any kind the crop for twenty years averaged 16¼ bushels per acre. It is plowed twice every year, and the wheat is hand-hoed in the spring to keep it clean. A few years ago, in a field adjoining this experimental wheat field, and that is of the same character of land, he made the following experiment. The land after wheat, was fallowed and then sown to wheat; then fallowed the next year and again sown to wheat, and the next year it was sown to wheat after wheat. The following is the result compared with the yield of the continuously unmanured plot in the experimental field that is sown to wheat every year:

1. Year—No. 1—Fallow			No crop.
No. 2—Wheat after wheat	15 bush.	3¼	pecks.
2. Year—No. 1—Wheat after fallow	37 "	—	"
No. 2—Wheat after wheat	13 "	3¼	"
3. Year—No. 1—Fallow after wheat			No crop.
No. 2—Wheat after wheat	15 bush.	3¼	pecks.
4. Year—No. 1—Wheat after fallow	42 "	—	"
No. 2—Wheat after wheat	21 "	0¼	"
5. Year—No. 1—Wheat after wheat	17 "	1½	"
No. 2—Wheat after wheat	17 "	—	

Taking the first four years, we have a total yield from the plot sown every year of 56 bushels 2¼ pecks, and from the two crops alternately fallowed a total yield of 79 bushels. The next year, when wheat was sown after wheat on the land previously fallowed, the yield was almost identical with the yield from the plot that has grown wheat after wheat for so many years.

So far these results do not indicate any exhaustion from the practice of fallowing. On the other hand they tend to show that we can get *more* wheat by sowing it every other year than by cropping it every year in succession. The reason for this may be found in the fact that in a fallow the land is more frequently exposed to the atmosphere by repeated plowings and harrowings; and it should be borne in mind that

the effect of stirring the land is not necessarily in proportion to the total amount of stirring, but is according to the number of times that fresh particles of soil are exposed to the atmosphere. Two plowings and two harrowings in one week, will not do as much good as two plowings and two harrowings, at different times in the course of three or four months. It is for this reason that I object, theoretically, to sowing wheat after barley. We often plow the barley stubble twice, and spend considerable labor in getting the land into good condition; but it is generally all done in the course of ten days or two weeks. We do not get any adequate benefit for this labor. We can kill weeds readily at this season (August), but the stirring of the soil does not develope the latent plant-food to the extent it would if the work was not necessarily done in such a limited period. I say *theoretically*, for in point of fact I *do* sow wheat after barley. I do so because it is very convenient, and because it is more immediately profitable. I am satisfied, however, that *in the end* it would be more profitable to seed down the barley with clover.

We *must* raise larger crops; and to do this we must raise them less frequently. This is the key-note of the coming improved system of American agriculture in all sections where good land is worth less than one hundred dollars per acre. In the neighborhood of large cities, and wherever land commands a high price, we must keep our farms in a high state of fertility by the purchase of manures or cattle foods. Those of us in the interior, where we cannot buy manure, must raise fewer grain crops and more clover. We must aim to raise 40 bushels of wheat, 50 bushels of barley, 80 bushels of oats and 100 bushels of shelled corn, and 5 bushels of clover-seed per acre. That this can be done on good, well-drained land, from the unaided resources of the farm, I have no doubt. It may give us no more grain to sell than at present, but it will enable us to produce much more mutton, wool, beef, cheese, butter and pork than at present.

"But, then, will there be a demand for the meat, wool, etc.?" The present indications are highly favorable. But we must aim to raise *good* meat. The low-priced beef and mutton sold in our markets is as unprofitable to the consumer as it is to the producer. We must feed higher, and to do this to advantage we must have improved stock. There is no profit in farming without good tillage, larger crops, improved stock and higher feeding. The details will be modified by circumstances, but the principles are the same wherever agri-*culture* is practiced.

A farmer in Virginia, who says he finds raising pork at present prices highly profitable, asks what effect the manure from 100 bushels of corn fed to pigs would produce applied to corn—continuing the crop until all the manure is used up. I cannot answer the question. The pigs will take from the food probably not more than five per cent of the most valuable elements of plant-food, and consequently, if the stalks were also returned, the manure from the hundred bushels of corn ought to give 95 bushels more than the same land would produce without manure. It will not give such an increase the first year, and probably not for several years, because the roots of the corn do not come in contact with every part of the soil. In the case of Mr. Lawes' experiments it required, on an average of 12 years, with a moderate supply of ammonia and a liberal supply of minerals, 4.86 lbs. of ammonia to produce one extra bushel of wheat and its proportion of straw. One hundred bushels of corn of 60 lbs. per bushel contain 108 lbs. of nitrogen, equal to a little over 131 lbs. of ammonia. If we calculate that five per cent is retained in the animal, there should be 104¾ lbs. of ammonia in the manure per 100 bushels of corn. This manure applied to an acre of wheat would give us on the average an *increase* of not quite 23 bushels. In the case of wheat we seldom get back in the increase more than one-half the nitrogen applied in the manure—often not over one-third. What becomes of the other half is a question not yet fully determined. Part of it may be thrown off from the leaves of the plant during its growth, and part remain in the soil in such a condition as to be but slightly, if at all, available for the growth of another crop of wheat. But *it may be available for the growth of clover*. In fact, I am inclined to think that the large amount of nitrogen found in a good crop of clover is not obtained so much from the atmosphere as from the accumulated stores of nitrogen in the soil that are unavailable to the wheat plant. The clover takes them up, and and when it is returned to the soil, either directly, as a green manure, or as manure from animals living on clover, this nitrogen, in part, at least, becomes available to the wheat plant. But whether this is so or not, the fact, as Geddes says, is well established that the growth of clover *does* enrich the land.

Some one writes to the *Agriculturist:* "Why does not 'Walks and Talks' stop whining about the high price of labor?" Why, indeed? It does no good. We had better accept high wages as a fact, and look the matter fairly in the face. Farmers cannot control the labor market. And as long as so many railroads and other public works are going on, labor will be high, no matter how low the price of grain may be. But there is one consoling thought—the money is not sent out of the country. The men who get these high wages are enabled to live better. They buy better clothes, and this has a tendency to advance the price of wool, and they will consume more butter, cheese and meat. What farmers want, and what our soils need, is a good price for all animal products. With the exception of wool, we have no reason to complain of the present price of these products, and it would seem as though wool had "touched bottom" and the tendency is upward. Give us good prices for beef, mutton, wool, pork, butter and cheese, and we can rapidly improve our farms. To me the prospect looks less discouraging than it did some months ago. Our population is rapidly increasing. The Southern States have received a large sum of money for their cotton crop, and are spending it wisely in developing their resources. They are sending North for improved implements and improved stock, as well as for pork, cheese, butter and other agricultural products. Then we have a railroad across the continent opening up vast regions marvelously rich in mineral and agricultural wealth. Already the West is beginning to feel the influence of this new outlet for its products. The other day, I received a letter from a farmer in Colorado wishing me to procure him two or three kinds of the best breeds of pigs. I went to the Express office in Rochester to ascertain the cost of sending them. The agent looked on his books, but could find no such place. He then went to a large map hanging in the office, but it did not reach the spot where this enterprising farmer lives, within five hundred miles. The incident only shows what a wonderful age and country we live in. Let a young farmer raise anything that is really valuable; let him be true to himself and honorable in his dealings, and fame and fortune await him.

I do not think wages will be much lower. But we shall discriminate more closely as to the kind of men we employ by the year. Some men are better worth $30 a month than others are worth $20. Good farm men, who are faithful and industrious, and especially those who can take care of stock, will continue to receive good wages. Let the others dig railroads under the sharp eye of a sub-contractor; it will do them good. Our farm men must learn that if they are to receive high wages they must earn them. They must learn to keep things in order and economize time; to do work by machinery; to drive three and four horses instead of two; must ride instead of walk, and then use the strength thus saved in taking extra care in feeding and cleaning their teams. They must learn that the proper management of improved stock is the highest branch of agriculture. For my part I do not want cheap labor. It is the dearest and most provoking of all labor. I want a man who has brains as well as muscle—a man who is quick to think and prompt to act. There is a demand for such men on the farm as well as in other industries, and they will obtain high wages for the reason that they can earn them.

It may be thought that this question of wages does not affect that large class of farmers who, with the aid of their family, do their own work; but this is not the case. High wages affect the price of everything that we have to buy and sell. The sons of farmers will not be content to work at home for poorer fare and poorer wages than they could obtain elsewhere; so that, in point of fact, such farmers need to turn their attention to improved stock and improved farming as much as those who depend principally on hired help. It has been said that high rents and high taxes in England *compelled* the farmers to adopt an improved system of farming. High wages and high taxes will do the same thing here. A farmer cannot pay his taxes and support himself and his family with crops of wheat of 10 bushels per acre, or with cows that do not make over 100 lbs. of butter a year, or with pigs that must be kept 18 months and then be fed an acre of corn each to make them dress 300 lbs. The farmers who do their own work are the very men who should adopt high farming and keep improved stock. They can bestow the necessary care and attention, and it is this which is so difficult to hire. I know a farmer with 75 acres of good land that makes probably $1,000 a year. He is a capital farmer, works early and late, keeps everything in order, gets his crops in at the right time, and suffers scarcely a weed to grow on the farm. He pets his cows, and loves to feed and take care of all his animals. I visit him frequently, and always come away with the feeling that he is cheated out of half his reward from not keeping improved stock. He bestows as much care on a flock of common Merinos as is necessary for a flock of thorough-bred Cotswolds; and Mr. Campbell's Shorthorns and Ayrshires receive no better treatment (though richer food) than his native cows. This good care and treatment pays him vastly better than if he neglected his stock, but if he kept improved animals his profits would be more than doubled.

THE JERUSALEM ARTICHOKE.—Those who wish to try the Jerusalem Artichoke, should plant it as early as the condition of the soil will allow. The land after plowing is marked

out with furrows 3 feet apart, and the small tubers are dropped about 18 inches apart, and covered 3 inches deep. Go over the field in a week or two with a light harrow to kill weeds, and cultivate between the rows until the plants get so large, as to render it unnecessary. It grows readily in dry soil. Those who make trial of it, should take care that the plant does not become established as a weed.

Alsike Clover.

The Alsike clover is still under discussion in the agricultural papers, and the accounts as to its value continue to be variable. Some of our correspondents ask how this differs from other clovers, and others wish our "candid opinion" in regard to it as a forage crop. This clover is also called Swedish, and frequently the "Swedish or Alsike," a doubling of names which it is desirable to avoid. The name Alsike was given to it because it was introduced into Great Britain in 1834, from the Swedish district of Alsike. It grows wild in Sweden, Denmark, and throughout the greater part of Russia, as well as in Southern Europe. Its botanical name is *Trifolium hybridum*. We give an engraving about

ALSIKE CLOVER—(*Trifolium hybridum.*)

one-third less than the natural size, which will show that it is readily distinguishable from the Red Clover (*Trifolium pratense*), by the form of its leaves, as well as by the character of its flowers. The flower head of the Red Clover has leaves just below it, while the separate flowers are sessile, or without individual stems, and they do not turn downwards after blooming. The flowers of the Alsike are white, (the older ones turning pink,) and in this it resembles the White Clover, (*Trifolium repens*), as it does in some other particulars. It is distinguished from the White by its erect (not creeping) stem, and its more wedge-shaped leaflets, which are more distinctly toothed on the margin, and without the notch at the end that gives those of the White Clover a heart-shape. The seeds of the three are readily distinguished. Red Clover seeds are about twice the size of the other two, and have a distinct notch or angle upon one side; they vary in color from lemon-yellow to purple. The seeds of the White and Alsike are nearly of the same size; the White are less regular in shape and vary in color from lemon yellow to light chestnut-brown. The seeds of the Alsike range from pale yellowish-green through olive to blackish-purple. The seeds can be readily distinguished under a magnifier. The seeds ripen late in July. Being much smaller than those of Red Clover, it requires only half the amount of seed to the acre. The present price of seed is from 60 to 75 cents a pound, according to quantity.

An analysis by Dr. Anderson showed the Alsike to contain nearly twice as much nitrogen as the common clover, but more recent analyses, given by Prof. Johnson in "How Crops Grow," do not sustain this conclusion—although it is a *little* richer in nitrogen than the Red Clover, but not so rich in this respect as the White Clover. It is a perennial, of a duration depending upon the character of the soil, but usually short. It goes to seed readily and in permanent meadows or pastures reseeds itself and continues to flourish for many years. The Alsike Clover attracted much attention in England because it was found to flourish on soils that were "clover sick." It has never been claimed by any reliable authority that it would produce as much hay per acre as the Red Clover where the soil was well adapted to the growth of the latter. But it is found very useful on soils where clover sickness prevails. We are not warranted in assuming from this, however, that the Alsike Clover will grow on soils where Red Clover perishes from an excess of moisture. The "clover sickness" of England and the failure of clover on our low, wet, mucky soils are entirely different "diseases." Underdraining will cure the latter, but the former often occurs on the driest and best drained land. As yet "clover sickness" is unknown or exceedingly rare in this country, and so far as this disease (supposed to be caused by a fungus) is concerned, we have no need of Alsike Clover. The only question is in regard to its value on low, wet land where the Red Clover is killed out. It has more fibrous roots, less tap-root than that, and hence may not be as liable to be thrown out by the frost on wet land. It is on this point that we desire information. We are aware that every good quality has been ascribed to the Alsike, but we imagine that its advocates are influenced by a desire to increase the demand for the seed. Where good crops of Red Clover can be grown there is nothing to be gained by sowing the Alsike. It will not yield as much hay per acre, and as the roots do not go so deep it will not stand a drought so well, or bring up from the subsoil as much plant-food as the Red Clover, and will not enrich the land as much

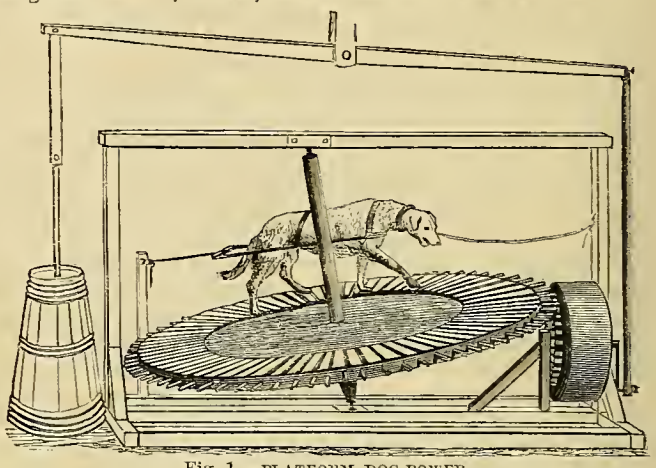


Fig. 1.—PLATFORM DOG-POWER.

Dog and Sheep Power for Churning.

Something has excited the interest of our subscribers in "dog-powers"—that is, in contrivances for utilizing the power of dogs for churning, and, perhaps, other light work—as we judge from the numerous inquiries lately received. This is a good symptom, it shows that there are some people who have waked up to the need of alleviating the drudgery of woman's toil. Where there is much churning to be done, a dog-power is truly a labor-saving device. There are several different kinds, the best, perhaps, is a "tread-power," like the ordinary one, or two-horse tread-powers. These, however, are rather costly, and can only be made by experienced mechanics. There are forms, however, which may easily be made by any one familiar with the use of tools. Two of these we represent in the accompanying engravings. They are worked upon very different principles. The revolving platform, fig. 1, is set at such an angle that, though the weight of the dog operates to favor the turning, it is, after all, by his strength of draft that the machine is effective. The animal must be harnessed in some simple way and attached to some fixed object. The harness figured has no advantage over the simpler one by which the arctic sledge-dogs are attached to the vehicles they draw. This is by means of a broad collar-band, and a small rope or thong passing from it between the legs and held in position by a belly-band. The platform power is made as light as possible, consistent with strength. There is a frame made, supported upon the shaft by means of cross-beams pinned

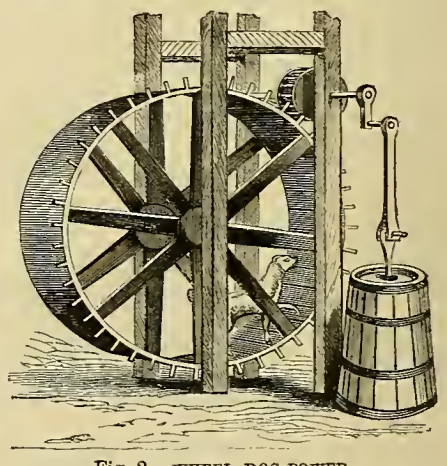


Fig. 2.—WHEEL DOG-POWER.

to it, braces beneath, and a rim in which pins are set to act as cogs, meshing in with flat ones in a drum. The churn may be operated by a crank and walking-beam, as shown, or, if a rotary churn, by a band running upon the drum. A track must be made for the dog by nailing radiating cleats upon the platform. Any arrangement to lessen friction, like friction-wheels, and iron sockets and bearings, will be of essential service. The platforms are usually 7 or 8 feet in diameter. The drum should be a little swelled in the center to prevent the band running off.

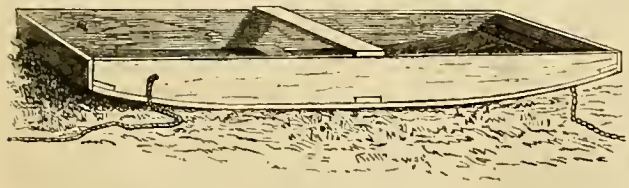
The wheel-power is a little more difficult to make, but has some advantages. It is operated by the weight of the animal, his labor being exerted precisely as in running up hill—as a squirrel runs in his cage. A heavy block is sometimes suspended from the axle to hang down behind the dog, and cross-bars may be nailed to the arms or spokes to prevent his jumping through. The wheel is either made only wide enough for one dog to run in, or wide enough for two to run abreast. Friction rollers, in this case, are also very useful. The wheel is hung in a frame, that will not shake with its motion, which is sometimes quite irregular. It is made with bent rims, fastened to the spokes, and boards are nailed to these.

The greater the diameter, the easier and slower will the wheel turn. Eight feet is about the right size, and the wheel should be banded with common hoop iron nailed on—regular hoops not being neeessary. A three-quarter-inch iron rod makes the bent axle, and this should be keyed fast in the wheel, while the ends should run in metal boxes, which may be oiled.

Dogs, sheep, and goats, are used in these and similar "powers." The last are rather light but active and hardy, and the exercise does them good, especially if they are kept stabled.

A Boat for Getting Out Muck.

Digging muck is work that may be done at almost any season, provided drainage can be got. Where the water of the swamps cannot well be drawn off, the work is usually deferred until very dry weather, which is not necessary, as a little contrivance will make the job an easy one. "S. R.," of Ashtabula Co., Ohio, writes: "We have been drawing out muck upon gravelly ground, hauling it out of the swamps in its wet state by means of a boat, made as follows: Take five one-inch boards, one foot wide, and eleven feet long. The side boards are sloped at the forward ends to five inches, and at the back end to eight inches. Three cross-pieces are put in, the bottom boards are bent to them and nailed. The boat is drawn into the swamp by hand, and drawn out by a team attached to a long chain." We think more cross-pieces would be desirable to give strength, but it is clearly unnecessary, and in fact undesirable, to have



BOAT FOR GETTING OUT MUCK.

the boat water-tight, for the water must have a chance to run out. Five five-inch cross-pieces, and three-quarter-inch oak boards would make a stiff, good bottom, which would wear a long time even if hauled a good ways over anything but a stony or gravelly soil. The engraving shows hand ropes near the stern for hauling the boat backwards, and the chain at the bow.

Three-Story Barns.

Three-story barns, or "three-deckers," as they are sometimes called, when conveniently arranged, are decidedly the most economical, both of material in building, and of labor and

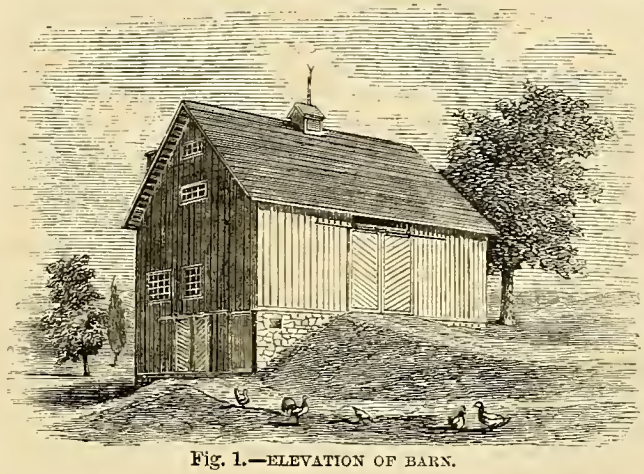


Fig. 1.—ELEVATION OF BARN.

care in management. The accompanying plan has been prepared in response to several requests for a barn-plan to accommodate a small farm, and not to cost more than $1,500 to $2,000.

It is rarely or never worth while to attempt to build a three-story barn upon level ground, but where a descent can be used having a slope of 18 inches in 10 feet for a space of 50 or 80 feet, it will do very well. A bridge, or a walled approach to the barn floor is often dangerous. Access by a self-sustaining sodded earth bank, sloping off gradually to the general surface, is decidedly preferable. A good cellar is seldom to be had without considerable digging, and the wall against the bank must be a substantial one of concrete, or of stone, or brick, well laid in cement, and guarded from the action of water by surface channels and underdrains. The cellar ought to be at least 9 feet high, the floor grouted and cemented water-tight, and should be accessible from the south. Being used for manure, convenience of loading carts requires it to be reasonably high. The feeding or cattle floor is not necessarily so high; 7 feet in the clear is as low as one ever ought to be, and 8 feet is about right. This floor should be accessible from each end, and well lighted. The openings for the manure to be thrown into the cellar, and for the liquid manure to flow through, must be where the liquid will not rot the beams. The floor should be laid of well-seasoned inch-and-a-half plank, merely tacked down at first if not perfectly dry, especially if the barn can stand through one summer before it is used. In this case the floor can be re-laid permanently in autumn, after this extra seasoning, and the seams caulked and pitched. The thrashing floor should be not less than 12 feet wide, the doors opening nearly the full width, and 10 feet high. From the sill to the plate cannot well be less than 14 feet, and the barn should be framed to dispense with the great cross-beams so much in the way of the horse-forks (see figure 5). The side beams, connecting the inner posts with the outer frame, should be level with the top of the great door. We commend a feature which we have long known to work well, namely, laying a corn floor upon the tie-beams of the roof. In this barn such a floor would afford 18 × 40 feet of space for spreading out corn to cure, in the hottest place to be found. Such a loft will hold easily 1,000 bushels of corn in the ear. The corn is lifted in tubs attached to the common horse-fork rigging. The corn sheller is placed here, and the shelled corn run down by a shute.

In building such a barn economically, it is expected of course that the farmer will do a good deal of the labor with his own men and teams, at times when other work does not press. He will dig the cellar and grade the ground for the approach and for the barn-yard. He will haul all the stones, sand, cement, and lime, for the wall, and, perhaps, mix the mortar and lay the walls himself. He will cut and hew the timber, haul to the saw-mill and back again, and assist in the framing and raising. It depends, therefore, a good deal on the part of the country in which the barn is to be built, what timber, as well as what foundation, can be economically used. The barn can be built near New York with bought materials and hired labor, for $2,000.

DESCRIPTION OF THE BARN. — The barn is 30 × 40 feet inside measure, and the plans are drawn to a scale of $^1/_{16}$ of an inch to the foot. Fig. 2 is a plan of the main floor. On the left, space is taken for the shop and the grain room.

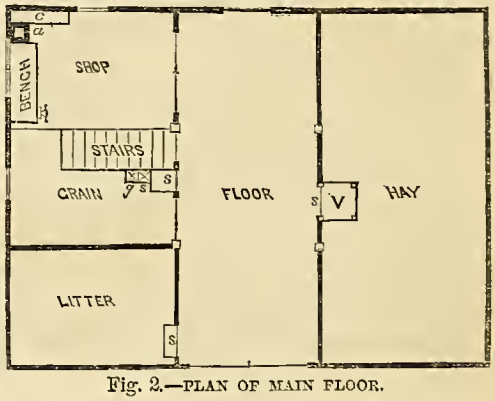


Fig. 2.—PLAN OF MAIN FLOOR.

The former, a room 10 × 14, has a large double window and a single one. The double doors make it possible to run a wagon or carriage into the shop, for painting or other repairs. There is a carpenter's bench and a closet for tools.

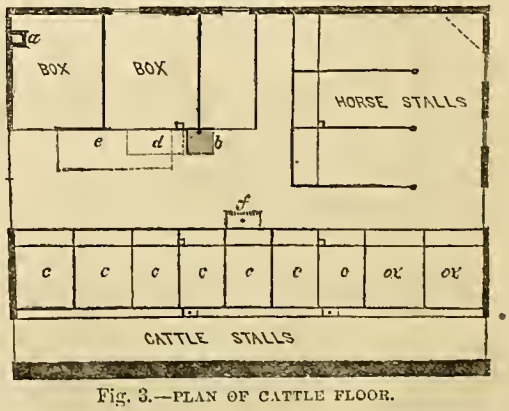


Fig. 3.—PLAN OF CATTLE FLOOR.

The chimney passes through this room, and a fire can be made if necessary. The grain room should be supplied with bins, and there should be two or three shutes for different kinds of grain or meal. These are shown at *g s*, fig. 2,

and are intended to be of canvass, after passing through the floor, so that they may be turned to one side and out of the way. These rooms need not be more than 7 or 7½ feet high. From the thrashing floor, two shutes, or trap doors communicate with the floor below—one near the stairs for cut hay, etc., one near the litter bay, through which bedding may be thrown down at the rear of the cows, while the ventilator is also used as a shute, and through it, long hay is

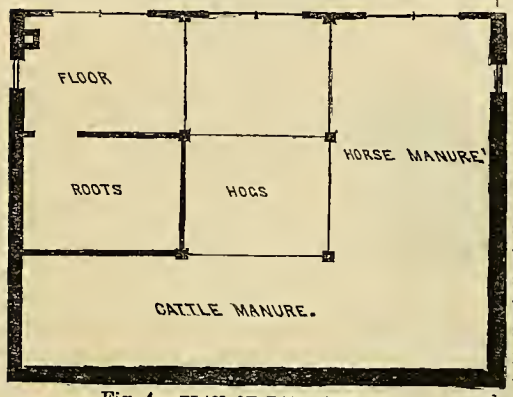


Fig. 4.—PLAN OF BARN-CELLAR.

thrown down, falling in the passage-way between the horse stables and the cow mangers. This ventilator (*V*) is 3 × 3 feet square, and extends from the cattle floor out through the roof of the barn.

The plan of the cattle floor (fig. 3) needs little explanation. The stairs at *e* are hinged and may be turned up and fastened, so that a cart can be driven, or backed under them, to dump a load of green fodder upon the floor, or one of muck to be thrown through the trap door *f* to the pigs. The feed-box *d* is movable. Near the end of the barn, where the horse and ox stalls are, the shed for wagons, carts, tools, etc., is supposed to be placed. At *b* a hydrant and water-trough is placed. One corner of the horse stable may be partitioned off for nice harness, etc., if desired. In the cellar plan, fig. 4, a root cellar is provided, also a floor where steaming apparatus may be set up. Here the "working hogs" are to be kept, and either shut off from the manure, or allowed to range over it, and given the range of the barn-yard besides, if that be desirable. This cellar is accessible to carts or wagons through three 8-foot doors, and it is light-

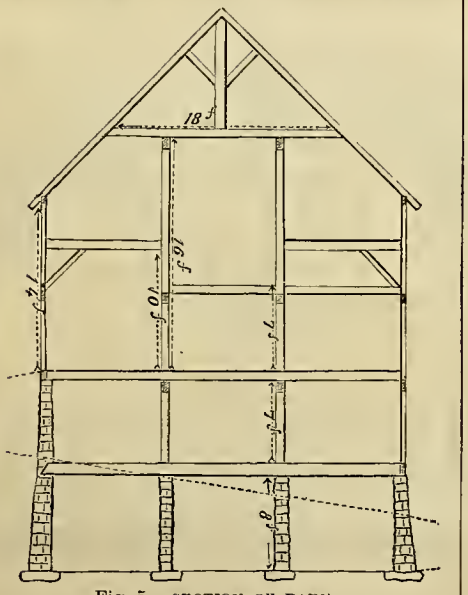


Fig. 5.—SECTION OF BARN.

ed by windows in these doors, and by others in the ends. The ground of the barn-yard slopes towards the cellar, and the water is collected in a tank to be pumped through a hose over the manure whenever it gets too dry, or too hot. Fig. 5 represents a cross-section of the barn, and shows the framing and slope of the ground.

Wooden Shoes for Horses.

Much labor would be saved in gathering the hay crop upon salt marshes and on reclaimed swamps, if horses could be used for mowing, raking, and carting. It often happens that the farmer has several acres of this soft land, where the crop costs all it is worth to gather it. He must mow, rake, and move the grass by hand, or let it rot upon the ground. We recently saw a wooden shoe that completely remedied this difficulty. It was made of stout oak board, one inch in thickness, 10 inches long, and 8 broad, and rounded at the corners. Fig. 1 shows the bottom of the shoe. A cleat is fastened across each end to prevent it from splitting, and to give additional strength to the shoe; this should be fastened either with stout screws 1¾ inches long, or with wrought iron nails driven through and clinched upon the upper side. An iron strap is fastened across the middle of the shoe to receive the shanks of the strap going over the hoof of the horse, which are held in place by screws and nuts. Fig. 2 shows the upper side of the shoe. The horse should be rough shod, and places should be cut into which the toe and heel corks will snugly fit.

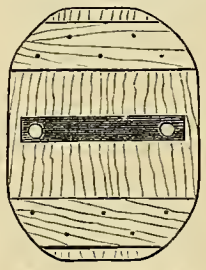


Fig. 1.—UNDER SIDE.

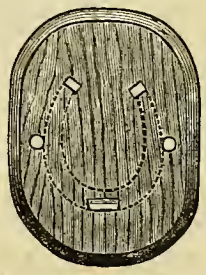


Fig. 2.—TOP OF SHOE.

In fig. 3 the hoof is shown as it stands upon the shoe. An iron strap (fig. 4) is fitted to the hoof, and the shanks pass through the plank and are fastened with a nut and screw. This shoe is so simple in its construction that any one accustomed to the use of carpenters' tools can make the wooden part of it, and a blacksmith can furnish the iron straps and screws. A common monkey-wrench will be needed to put on the nuts, and to tighten them, if they get loose.

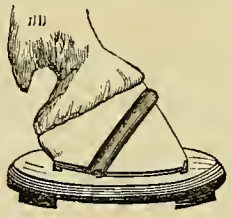


Fig. 3.—SHOE FITTED.

A set of shoes made of good white oak will last a great many years. It will be seen that the shoe enlarges the lower surface of the hoof about four times. It is found in practice that a light horse, weighing, say 900 lbs., shod in this way, can go upon any soft land, where a man could walk, with safety. If the horses are very heavy, or the land very soft, the shoes must be enlarged. These articles had been in use upon the farm where we saw them, some ten years, and so manifest were their advantages that they had been adopted by all the farmers in the neighborhood who had occasion for them. They were in use by all the owners of a large reclaimed salt marsh, and the facility they afforded for gathering the crop, had added very much to the value of the land. To owners of marsh lands these shoes will be invaluable.

Fig. 4.

Hints on Turkey Raising.

The southern part of New London county, Conn., is famous for its turkeys, and the manner of raising them is thus described by "A Native": "Ten or twelve hens with a gobbler is a good stock, and if there is a good range for them, this number may be kept with very little more trouble than a trio. Birds from 2 to 4 years old will bring much stronger chicks than yearlings, and give much better results. But if, from any cause, last year's hens are kept, let them be from the early broods. The late broods should all be sent to market. It is a great point to make the hens all lay near home, and for this purpose it will pay to yard them for a few days when they commence laying. They are thus much more easily protected from foxes, skunks and vermin, and are much more likely to keep together in one flock. When the young ones are large enough to go to the fields, make houses or shelters for them to lay in, and if possible, have them several rods apart, so that at hatching time the turkeys will not be able to hear the peeping of their neighbor's chicks. This will sometimes make a sitting turkey so uneasy that she will abandon her own eggs. If nests are made near one another the hens should be set at the same time, so as to come off together. This is also desirable in case of failure of a part of the eggs to hatch. Two broods may be given to one mother to the number of 18 or 20 and the other hen will very soon begin to lay again. The eggs should be carried in at night, if frost is threatened, and be returned to the nest again in the morning. The heat that they receive from the birds while laying, and the turning that they get is said to have a favorable influence upon them and to make them hatch better. There is a difference of a day or two in the hatching of a fresh and an old egg, although they be of the same clutch. The old bird is inclined to accommodate her movements to the strongest of her family, and the weakest are frequently left behind and lost. When they come off, confine from one to three broods in a pen from 10 to 15 feet square, made by setting up wide boards edgewise, so that the young ones cannot jump out. The old ones will not wander far from the pen, and in about a week the chicks will be able to clear the boards, when they may be safely left to go with the hens. In storms they should be sheltered. Give a little food at first. Indian meal is too fine, and frequently kills them. Get corn cracked at the mill on purpose, and increase its size as the chicks grow. Wheat, buckwheat and oats are good for them when a few weeks old. Feed, also, at first, with some kind of fresh animal food. Chopped liver and beef, boiled eggs and curdled milk are good. The success of the turkey crop depends mainly upon the first month. They should be brought home to the poultry yard every night. For the first three weeks a boy or girl should be employed to watch them, keep away hawks and other enemies, and see to the stragglers. Not a few chicks are lost in the grass and perish because they lose the sound of the mother's voice. One child can watch the broods of a dozen hens, and keep them in the same range—a great deal of trouble later in the season. For, if they begin to feed together they will naturally take the same course every morning, and all the turkeys will be found near together when they are sought at night, if they should fail to come of their own accord. If fed every night they will rarely fail to make their appearance when the cows come for milking. A pasture is the

best range for them when they are young."

NOTES.—There are some things about turkey raising, which it is worth while for a novice to know, not told by our correspondent. Turkeys if well trained become very domestic, and may easily be made to lay, in good-sized boxes placed in sheds or out-buildings, out of the reach of dogs and vermin. The eggs may be removed daily, and this is best if they are carefully handled, because a turkey is often half a day upon her nest long before she becomes broody. If early broods are desired, leave a nest full of eggs (wooden ones) and the hen will soon stop laying and sit. Very tame turkeys are often such persistent sitters that they must be taken off at least every alternate day to feed. Turkey hens are very careful mothers; they rarely or never tread upon a chick, and when the chicks are very young their extreme care is almost distressing. They may, therefore, be cooped; and this is best with all early broods, for otherwise the young suffer for lack of brooding. When turkey hens are cooped with their broods the greatest care is necessary to prevent the coops becoming foul. It is well to shift them daily, or to use an abundance of *dry* earth scattered several times a day over the floor of the coop. We prefer to feed all young birds animal food; hard-boiled egg with curds, mashed together and mingled with bread soaked in milk, is our favorite diet for young turkeys, and they thrive upon it. Cracked wheat and corn follow, and with other grains these soon become the staple food.

The Cultivation of Barley.

We have received many letters asking information about barley, and we conclude that, attracted by the comparatively high prices which have prevailed for a few years past, many who have hitherto paid no attention to this crop are intending to raise it. They had better do so on a small scale at first. Our climate is not as favorable for barley as for oats and wheat. We cannot obtain a good crop unless the soil is dry, clean, and rich. It seldom does well on a recently inverted sod. Its best place in the rotation is after a highly manured and thoroughly cultivated corn crop. The best crops are obtained on a rather heavy calcareous loam, *provided* it has been thoroughly pulverized during the preceding summer and autumn. But as this is seldom the case, the soils that usually give the best medium crops are those of a lighter and warmer character—or sandy loams.

Barley should either be sown very early, or rather late—say the moment the ground is fit to work in the spring, or not until after the heavy spring rains are over. We have had the best success in sowing very early, say the first of April; but good crops are frequently obtained when sown as late as the middle of May. Much depends on the season. If we have heavy rains soon after the barley is sown, and then before the plants cover the ground, dry weather sets in, the surface of the soil becomes baked, and the crop suffers. An early sown crop would suffer less, because it would have got a good start before the drouth set in. A crop sown immediately after the spring rains, as soon as the land is in condition to work, commences to grow rapidly at once, and often does better than a crop sown two weeks earlier—but not as well as a crop sown a month earlier. If the soil is rich and has been plowed the fall previous, sow as early as it will work without clogging.

When barley is grown to sell, the six-rowed, or what is usually called the *four*-rowed (though there is no such thing as a four-rowed barley), is the most profitable—because it brings from ten to fifteen cents a bushel more than the two-rowed. But when barley is grown to feed out on the farm, the two-rowed is altogether the best, especially on strong, rich land. It weighs more per bushel, and if the soil is rich enough, it will yield more per acre. It has another advantage, of being later than the four-rowed, which ripens at the same time as wheat, and we have wheat and barley harvest on us at once. With the two-rowed, we can get through with the wheat by the time the barley is ready.

We usually sow from 2 to 2½ bushels per acre. If the land is very rich and it is sown early and drilled in, less seed is required. Last year we had a better crop from 1¼ bushels of seed per acre, than from 2½ bushels—but the land was in better condition, and sown a week earlier. The yield varies more than that of almost any other crop, depending somewhat on the season, but much more on the condition and previous culture of the soil. We have had over fifty bushels per acre, and in just as good a season, and on land naturally as good we have had only twelve bushels. We again advise our readers *not* to sow barley unless the land is in good condition.

Canada Thistles and Other Weeds.

The fact has been often stated that thistles will succumb to dilligent pulliog or cutting up below the surface. No plant will survive this treatment. Canada thistles may be easily seen soon after the new shoots break through the ground, and before they become self-supporting. These sprouts while yet dependent for their life upon the succulent fleshy roots and underground wandering stems of the parent stock from which

Fig. 1.—THISTLE TONGS CLOSED.

they start, are in the most vulnerable condition possible. A broad blade, like those attached to some horse-hoes, drawn through the ground some three inches below the surface, will, if used several times in the course of one season, completely wipe out this pest, except where stones or other obstacles interfere with thorough working. Plowing is not efficient, because it leaves too much root upon the shoots, and only disturbs and transplants them. The sprout of the Canada thistle is pretty tough, and if evenly held and pulled directly upward, will usually draw out, breaking off several inches below the surface. On page 219, of the *Agriculturist* for 1868, we gave a description of a pair of long-handled wooden tongs for pulling Canada thistles. The accompanying engravings show a pair of iron-jawed pincers or tongs for the same purpose; the notched jaws should be about 8 inches long, narrow, and having a griping surface of about three-quarters of an inch. Any blacksmith can make them. The drawings are sent us by Mr. H. R. Denroche, Alleghany Co., N. Y. The iron pincers are superior to the wooden ones, because they may be pushed into the ground, and so get a better hold of a younger plant.

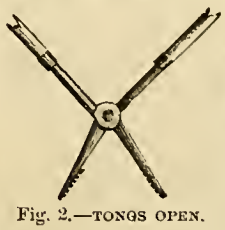


Fig. 2.—TONGS OPEN.

Corn Fodder as a Soiling Crop.

We have made during the past season an experiment in relation to the soiling of cattle, which demonstrates the value of sowed corn for this purpose. We have a small herd of Jersey cattle, and a very poor farm from which to feed them. A piece of rye, sown last fall, gave them an early bite in May, and by the time that had grown too large to be used, the first sowing of oats was ready for the scythe. Early in June it became evident that most of the oats would be too large for profitable feeding before the corn was large enough to cut, and we paid $100 for two acres of clover, (with the privilege of cutting it twice). Commenced feeding from this clover on the 24th day of June. No clover could have been in finer condition than this was, nor have been eaten more greedily. It constituted about one-half of the cows' forage until the 1st of August, being intermitted with oats and a little grass. During this whole time, the cattle were abundantly fed, and were in excellent condition. On the 25th of July we commenced feeding corn fodder, giving it at first but once a day. By the middle of August it was fed exclusively, and a part of the second cut of the purchased clover was re-sold for $20. The calves had all been weaned by the middle of June, and there was nothing in the condition of the herd to prevent a full product of butter at that time. The variations during the summer must, therefore, be ascribed entirely to the difference of food. The following table of the weekly product shows what these variations were:

Week ending	Food.	Butter made, lbs.	Week ending	Food.	Butter made, lbs.
June 5,	Rye	32	Aug. 7,	Corn	57
" 12,	"	29	" 14,	"	58½
" 19,	Oats	35½	" 21,	"	56½
" 26,	Oats & Clover	50½	" 28,	"	60½
July 3,	" "	48½	Sept. 4,	"	62
" 10,	" "	54½	" 11,	"	56
" 17,	" "	49	" 18,	"	54
" 24,	" "	47½	" 25,	"	55
" 31,	Corn & Clover	52½			

This table proves two things:—1. Whereas cows kept on pasture, fall off materially from their June yield, as the season advances, they may not only be kept up to the full quantity by soiling, but by the supplying of a better food their yield may actually be increased. 2. Neither rye, oats, or clover, nor a mixture of these, is so effective in the production of butter as is corn fodder. It is to be borne in mind, that during the latter part of the season, when the yield of butter was largely increased, the cows were much farther from their calving time, and as they were to come in from November to April, their milk should naturally have diminished.

Our corn fodder was planted on very highly manured ground, with a common wheat drill, from which all but three of the teeth had been removed, leaving the rows about three feet apart. The box was so arranged as to discharge about forty kernels to the foot in each row. Two kinds of corn were used—Southern white and Western mixed. The Southern white seemed to be very much the best, and although it has naturally an enormous stalk, the thick planting reduced it to a diameter of from ¼ to ½ inch. The corn grew to a hight of 6 feet, and occupied the ground as thickly as anything could; and the crop would, doubtless, have made (could it have been cured) fully 6 tons to the acre.

HOW TO RAISE PARSNIPS.—Select a rather heavy loam, but clean and rich. Plow it deep and harrow it thoroughly as early as it can be worked; mark off in rows 15 inches apart, and drill in the seed or sow by hand. Use plenty of seed, two or three to the inch, and be sure it

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COLLECTING SEA-FOWLS' EGGS.—FROM A SKETCH BY E. JUMP.—*Drawn and Engraved for the American Agriculturist.*

as *fresh*. Go through the rows with a pronged hoe, or other implement, as soon as they can be distinguished. When large enough, thin the plants to stand 4 or 5 inches apart, and be sure that they stand singly. Keep the land clean by frequent hoeing. We raised last year 1,000 bushels to the acre where the land was very rich, and not 500 upon land not highly manured.

Collecting Sea-Fowls' Eggs.

It is only rarely that the eggs of sea-fowls are found in the markets of the Atlantic coast, but upon the Pacific side they form an important article of trade. The rocky islands along the Pacific are the resort of countless numbers of sea-fowls of various kinds. The bird, which lays the eggs that are valued, is a Murre or Guillemot. It has been supposed that it was identical with the Foolish Guillemot of the Atlantic coasts of this country, and of Europe, but our best authorities consider it different. Its scientific names are much confused; it is the *Uria Brunnichii, U. Troile, Cataractes Californicus*, etc., of various authors. The bird makes no nest, but deposits a single egg upon the bare rock, upon which, like Hans' hen, she "sits standing," or in an upright position. The eggs, which are from the size of a goose egg down to one-fourth that size, are remarkably varied in color, being, for the most part, bluish, with blackish or brown spots, no two of them being marked alike. The bird being very inoffensive and stupid, suffers at the hands of its more wide-awake neighbors, the gulls, which are always on the lookout for a chance to plunder its eggs. Dr. Heermann says: "I one day saw three gulls approach a single Murre sitting on her egg. Two of them feigning an attack in front, the Murre raised herself to repel them with her sharp-pointed bill; instantly, the third, advancing from behind her, flew off with the booty, the first two immediately following to claim their share." The egg gatherers visit the islands at intervals from May until July. The birds, when their eggs are removed, continue to lay during these months. During a "drive," as one of the visits of the egg hunters is called, the islands present a scene of the wildest confusion. The birds fly against the rocks in their fright, or collect upon the ledges in such masses as to kill one another with their struggles. When the drivers take possession, the birds leave the islands and settle upon the water, covering it for a great distance. A few years ago, domestic fowls were very scarce in California, and the great demand for eggs in the cities was mainly supplied from the islands along the coast. The trade in sea-fowls' eggs has reached nearly $200,000 annually.

The Abronias.

Among the pleasing annuals is *Abronia umbellata*. It is a trailing plant, producing numerous clusters of pink flowers, which have the general appearance of those of the Verbena. This, and one with cream-colored flowers, *A. arenaria*, are found in abundance along the

shores of the Pacific, where we have seen them growing in great beauty in the dry, blowing sands. In cultivation, they do best in a light sandy soil. While traveling in New Mexico, the writer had frequent occasion to admire the beautiful *Abronia fragrans*, the clear white flowers and pleasant fragrance of which gave it an attractiveness not often possessed by flowers of that region. The receipt of a package of seeds of this plant from H. A. Terry, Crescent City, Iowa, brought up pleasing recollections and gave gratifying evidence that the plant is in successful cultivation much farther north than we supposed it would be hardy. This is a perennial, and does well with Mr. Terry in a sandy situation. We give an engraving of the Fragrant Abronia, taken from a dried specimen of the wild plant. The stem grows about 18 inches high, and the leaves are fleshy and of a dull green. The flowers are in umbel-like clusters, of a pure white; beneath the cluster is an involucre of several leaves, which are white also. In cultivation the flowers are larger than those represented in the engraving. The resemblance of the flowers to those of the Verbena disappears upon examination. In structure the Abronias are much like those of the Four-o'clock, both belonging to the same family. Abronia is from a Greek word, meaning delicate.

THE FRAGRANT ABRONIA—(*Abronia fragrans.*)

Spring Flowers—The Twin-leaf.

In the woods of the West one of the early spring flowers is the Twin-leaf (*Jeffersonia diphylla*). Its curiously halved leaf readily suggested its common name, as well as its specific botanical one, but we cannot see what induced Dr. Barton to bestow upon it the name of *Jeffersonia*—in honor of Thomas Jefferson. Statesmen and soldiers can be honored sufficiently in other ways, without making plants perpetuate their names in Jeffersonia, Wellingtonia, Napoleona, and the like. The engraving gives the plant of the natural size at the time of flowering, though later in the season the leaves become somewhat larger. The flowers are white, about an inch in diameter, and are borne singly on leafless stems or scapes. The petals are usually 8, with 8 stamens and a single pistil. The pistil ripens into a pear-shaped pod, which splits open at one side to liberate the seeds, as is shown in the detached figure at one side of the engraving. The Twin-leaf considerably resembles the Blood-root (*Sanguinaria*), and appears in flower at about the same time. It, however, belongs to the Barberry family, with the curious May-apple (*Podophyllum*). It is a pleasing plant to have in the garden, it comes so early, and has such a wild wood air; but it has the disadvantage of dropping its petals very early.

THE TWIN-LEAF—(*Jeffersonia diphylla.*)

Fruit for the North-west.—2d Article.

BY OUR SPECIAL IOWA CONTRIBUTOR.

VARIETIES.—Much failure and disappointment have their origin in the selection of varieties unsuited to the climate. We should have well settled ideas of what varieties we want before purchasing; and in no case allow the tree vender to persuade us into buying varieties that have not stood the severest test for hardiness, of which he may happen to have a surplus. Certain varieties will succeed in certain localities, while certain other varieties will not. It is true that a difference of soil, or exposure in the *same County* often affects differently the hardiness and productiveness of the same varieties; but those in the following list, embracing summer, fall, and winter, have been so thoroughly tested, and their value so well established, that it is safe to recommend them for general culture in our State. I therefore offer as suited to Iowa the following

LIST OF APPLES.—*Summer:* Carolina Red June, Red June Sweet, Early Harvest, Benoni, Red Astrachan, Dyer.—*Autumn:* Dutchess of Oldenburgh, St. Lawrence, Fall Orange, Lowell, Famouse, or Snow.—*Winter:* Jonathan, Grimes' Golden, Domine, Ben Davis, Rawles' Janet, Willow Twig, Bailey's Sweet, Talman's Sweet. Every one should be his own judge as to how many of each, or what proportion of each he wants. This will depend upon circumstances which no one so well understands as himself.

PLAN OF THE ORCHARD.—After the trees are well set, there should be a plan of the orchard. This may be drawn on a convenient scale, in a blank book, having each tree numbered, and the variety named. In this book should also be kept a record of every thing of interest pertaining to the orchard; the management of trees; method and time of pruning, with results; productiveness and hardiness of varieties, etc.

CULTIVATION.—I would not thank one to put a plow into my orchard after it has had one year's *proper* cultivation. My practice is, to cultivate the first year as late as the first of August, by throwing furrows towards the trees, *ridging up* one way, and the following spring *early*, seed to clover. Leave a circle around each tree, eight feet in diameter, and keep it well covered, or mulched, with coarse manure, stirring it with a few inches of the surface soil occasionally; and adding to it after the ground freezes every fall. I have found this plan of seeding to clover, and keeping the ground loose and rich around the tree, far better than tearing up the roots, and bruising the trunks and branches by plowing. A heavy mulching in the fall, after the ground has frozen, protects the surface roots, and keeps the tree back in the spring, when it is often injured by starting too early. *Recollect, my friend, not to mow and carry off that clover!* You may turn in small pigs to harvest it, and at the same time cultivate around

the trees; which they will do (when mulched) in search of the worms and other vermin.

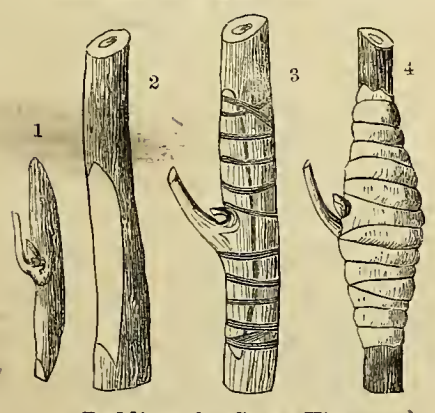
The health, beauty, and productiveness of an orchard depends much upon proper

PRUNING.—If a tree is properly managed in the nursery, and taken up as it should be, it should not be touched with the pruning knife the year it is set. The shock of transplanting is all it can well bear in one year.

Besides, the *natural top* will make a demand for a corresponding amount of roots, of which the tree may have been deprived by removal, and nature will be sure to respond by furnishing all in her power. The second year, in the month of June, use the knife sparingly, by taking off such limbs as will leave the top *low, spreading*, and shapely. Encourage your trees to head low, by trimming from above rather than from below. "Shortening-in" may often be done to advantage, but care should be taken not to cut back more than one-half of the last years' growth. It ought never to be necessary to cut off a large limb; but if by neglect it should be, cut closely to the trunk, and cover the wound well with grafting wax.

DRAWBACKS.—But the end is not yet. Eternal vigilance is the price of apples as well as of liberty. The orchard needs constant care and watching. Gophers, Rabbits, Borers, Bark-lice, Canker-worms, and Caterpillars, all have their time and season, and must be met and vanquished, or we have no apples. The Gopher is easily stopped by opening his hole, and dropping in a piece of sweet apple, or potato, with a little strychnine on it. A wash of cow manure and urine, put on thick twice during the latter part of winter, will keep off rabbits. Keeping the ground clean around the tree is the best safeguard against borers. Caterpillars and worms must be hand picked, and the trees kept healthy and growing, to guard against bark lice or aphis.

All this and much more goes to make up the conditions of success in apple raising. But don't let these difficulties discourage you. Many of them disappear as soon as the trees become well established, and the others are slight indeed compared with the importance of the object sought. Farmers of the North-west, don't let another spring pass without setting out a good-sized orchard, if you have not already done so. This is the advice of one who has tried it, and who believes and knows that we *can* raise apples in Iowa. S., *Powesheik Co., Iowa.*



Budding the Grape-Vine.

The English horticultural journals have had much to say about budding the vine, and have given accounts of the remarkable success that has attended this mode of propagating. It is only recently that we have seen the details of the process described; a recent number of the London Field gives an account, of which we give an abstract and copy its engravings. The operation may be performed upon the main vine, or upon the laterals; the best time is when the wood of the stock is about half ripe. A bud is cut as shown in fig. 1; the stock, fig. 2, has a corresponding cut made to receive the bud; there is a nick at the lower end of the cut which receives the lower end of the piece containing the bud, and holds it in position. The surfaces of the bud and stock are made to fit as evenly as possible, and are bound together by bast matting, as shown in fig. 3. Afterwards, a bandage of cotton-wool, extending an inch below and an inch above the wound, is placed on in such a way as to allow the bud and leaf stalk to be exposed, and is bound on firmly. The cotton is to be kept moist for several weeks. The bud, of course, does not start until the following spring, when it produces fruit as readily as the natural buds of the vine. The practice has thus far, we believe, been confined to grapes under glass, and probably some modifications would be necessary for it to be successful with out-door grapes in our dry atmosphere. A friend who is very successful in inarching the vine, binds up the wound with oiled silk to prevent drying, and over this he winds cotton cloth to protect it from the sun. We think that the same treatment would be worth trying with the process we have just described. It will be seen that the much-talked of budding of the vine is not budding, as generally practised, but only an old method of grafting, in which a cion with a single bud is used.

Crab-Apples.

But a few years ago Crab-apples were grown mainly as ornamental trees, and the rather acerb fruit was sparingly used for preserves. But few varieties were known, and these received but little attention at the hands of pomologists. Now we find that, in the colder parts of the country at least, the crab-apple is becoming a fruit of great importance, and instead of the small, astringent, and quickly perishable fruit, we have varieties fair in size, acceptable in quality, and excellent keepers. The Siberian Crab-apple (*Pyrus prunifolia*), is a distinct species from our common apple, (*Pyrus malus,*) and as its name indicates, is a native of the cold regions of Siberia. It differs from the common apple mainly in having its foliage smooth, except when it is very young, and the styles (parts of the pistil) woolly at the base. The small-fruited or Cherry Crab (usually called *Pyrus baccata*), is only a variety of the Siberian, and has much smaller fruit from which the calyx falls when ripe. The Crab-apple is a very hardy tree, and will endure and perfect its fruit in localities where the ordinary apple fails. We think that there is but little doubt that the improved Crab-apples now attracting attention are natural crosses between the Siberian Crab and the common apple, though Dr. Warder, in the Horticultural Annual for 1870, considers them as sports rather than hybrids. At all events, whether by sporting or through hybridizing, the austere character of the crab is broken down, and it is improved to such a degree as to make it a fruit of the greatest value. In the article above referred to, Dr. Warder gives a very full account of the newer varieties of this fruit. The receipt of a box of specimens from Mr. Charles Andrews, of Marengo, Ill., reminds us to call attention to the claims the improved Crab-apples have to the consideration of those who live where the severity of the winters are an obstacle to fruit culture, as is the case in many parts of the Northwestern States and of Canada.

The Hislop is one of the first of the improved

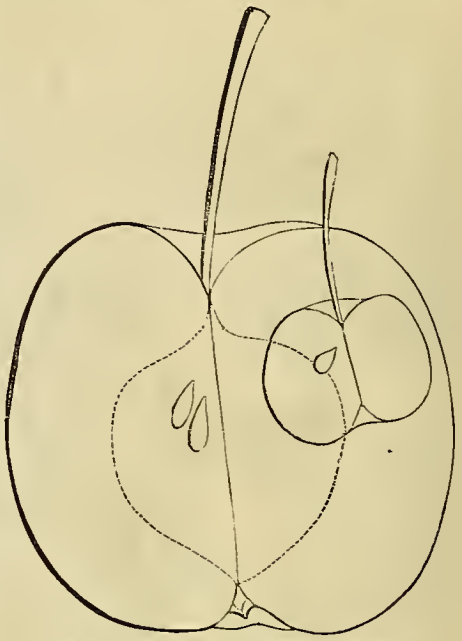


Fig. 1.—HISLOP AND CHERRY CRAB.

varieties that claimed attention, and we give an outline of that and the Cherry Crab, to show the difference in size. The Hislop is, however, fit for cooking purposes only. The specimens sent by Mr. Andrews, were Marengo (fig. 2), a red apple, keeping until late in spring. Chicago, yellow, December to March, and Coral, which is similar in appearance to Chicago, but more acid. These all originated at Marengo, Ill. A set of Crabs has been raised in Minnesota, by Mr. P. A. Jewell, of Lake City. Among them are Summer Rose, July and August; Orange, Sept.; Gen'l Grant, Oct.; Hesper Blush, Oct.;

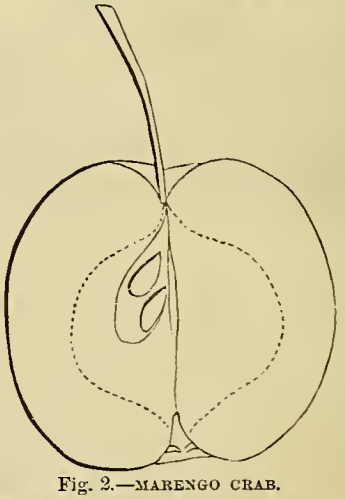


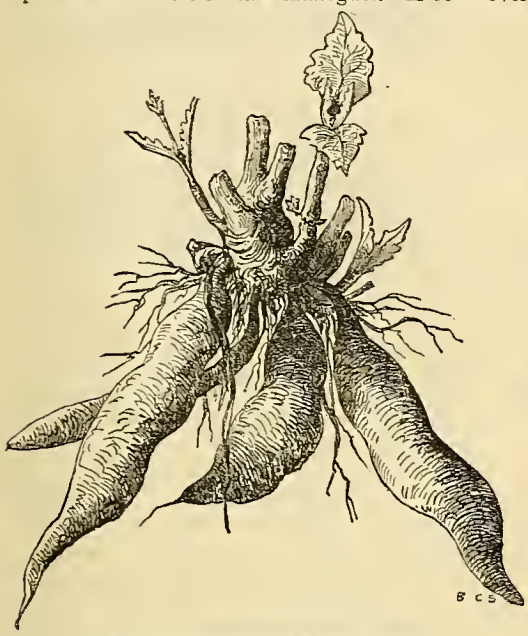
Fig. 2.—MARENGO CRAB.

Eureka, fall and winter; Quaker Beauty, winter. There are several Wisconsin seedlings, some of which are known only by numbers. Harger's Winter keeps until April; Tuttle's Sweet is a very large and sweet variety, red, season in September. Last season a fine large sweet crab, the Van Wyck Sweet, was introduced by Mr. A. S. Fuller, which is a chance seedling that originated in the town of Fishkill, N. Y.

Proposed New Vegetable.—*Polymnia edulis*

It is not often that we have a plant that is valuable in both the kitchen and flower garden but here is the *Polymnia edulis*, which claims to

be both ornamental and useful. We have two native Polymnias—which have the common name of Leaf-cup—and very coarse-looking things they are. It is to be hoped that this recent Bolivian introduction is more elegant than its Yankee relatives. The plant has tuberous roots, similar to those of the Dahlia, and it is stated by the Prussian seed growers that the roots are much esteemed as food in their native country. We give an engraving of the root as represented in the Prussian catalogues. A recent French writer says that the roots of this Polymnia resemble those of the Dahlia in both form and taste, and "this, in an alimentary point of view, allows us to appreciate the future of this plant." The seeds are very scarce; but thanks to Messrs. Thorburn & Co., we have a few for trial, and hope that it will prove either handsome to look at or good to eat, if not both. We should add that the Polymnia belongs to the Composite Family, and that the genus was named after Polyhymnia, one of the muses. Our native species do not deserve so poetical a name, but perhaps this South American one will show that Linnæus was, after all, not so far wrong in imposing it.



ROOTS OF THE EDIBLE POLYMNIA.

Opium Culture.

The request that those who had grown poppies and collected opium should give their experience, has brought out several replies, but none so full of details as that of a correspondent "B.," in Wisconsin, who requests that we shall withhold his name and save him the "postage, paper, and time" it would require to answer letters. His experiments in opium raising were made in New York State, in 1848 to 1852, upon one-fourth of an acre. Mr. B. states that he made in all over 27 pounds of opium, specimens of which were sent to several medical colleges; a quantity was sent to New York to have the morphia extracted, and he has the statement of the chemist that the yield was up to the average of that of the best imported opium. The first point to be considered in regard to this as with all other crops is—will it pay? Mr. B. says: "It will pay, and pay well, if attended to rightly. I know that I can take an acre of land and get more money from it than from three acres in any other crop I ever saw. It is not an exhausting crop, but a good one to precede wheat. At $10 or even $8 a pound, it will pay better than corn or wheat. I am not afraid that many will raise poppies or that too much opium will be made. It is too small business to suit the mass of farmers. It is worse than a dairy in requiring close attention to business. The man of small means, with a little land, and who is close, careful, and plucky, will make it pay. A good boy or girl can attend to a quarter of an acre, and have over half a day to spare. The labor of weeding and hoeing is no more than for carrots or onions." Here is the point that all intending to experiment should keep in mind. It is "small business," i. e., full of minor details, the proper observance of which are necessary to success. Good, rich land is required, which should be pulverized and leveled as for an onion bed. Drills are then drawn with a marker so arranged as to make two drills one foot apart, then a space of 18 inches for a walk, then two more drills a foot apart and so on. The seed should be that of the Opium Poppy, *Papaver somniferum*, which is now kept by our large seed dealers. The exceedingly fine seed must be covered very lightly, which is best done by drawing the back of a rake lightly over and along the drill. The plants are to be thinned to six inches apart in the rows and to be kept clean by proper cultivation until they come into flower. After the flowers fall away the work of gathering begins as soon as the capsules or seed vessels are of sufficient size. Some are under the impression that opium is an *extract* of the Poppy plant, made by pressing out the juice and evaporating it; but such is not the case, it is the dried milky juice of the Poppy, which is secreted, probably for the nourishment of the seed, just as the seed vessels are growing, and can only be obtained by scarifying them at the proper time. We will give an account of the process another month.

The Relics of the "Grape Mania."

BY PETER HENDERSON.

Two years ago it became evident that that extended, general culture of the grape was a failure. Hundreds, perhaps thousands, found themselves in possession of glass structures that had been erected for its propagation, looming up as unpleasant reminders of disappointed hopes, of labor wasted and of money lost. None but those engaged in the business can conceive how wide-spread had been the area to which the propagation had extended, or the amount of capital that had been invested in a business which, to the majority of those engaged in it, proved a total loss. Having been long occupied in horticultural pursuits, and being somewhat affected with the grape fever at the time it raged, I was called upon by hundreds for information in regard to the construction of propagating houses, or green-houses best suited for growing vines. These inquiries came from nearly every State in the Union and from all classes of the community; from the man of means, ready to invest his $10,000 or $15,000 in the enterprise, down to the poor farmer or mechanic about to hazard his only hundred or two in a business of which he was entirely ignorant. The only assets of this now bankrupt business are the green-houses which were erected for the propagation of the grape. How to make these assets available is the object of this article.

In all cases where grape propagation was started in the vicinity of a town of 5,000 or more inhabitants, there is no doubt that these green-houses might be made available for growing vegetables or flowers. As the determination, as to which will be the more profitable, depends much upon the location, the directions here given can only be general, and the reader must use his own judgment as to what is likely to best suit his locality. Many vegetables may yet be sown (in April) under the protection of the green-house, so as to gain at least two or three weeks in earliness over those sown in the open ground. These are here named in the order of their importance as market crops in most places: Cabbage, lettuce, tomato, cucumber, melon, Lima bean, egg plant and pepper plant.

Cabbages and lettuce are the only ones named that are what are termed hardy vegetables. These should be sown thinly in shallow boxes filled with soil to the depth of three or four inches, and placed on the bench or table of the green-house or propagating house, but in the coldest part or that part where most ventilation can be given. The seeds should be so sown that the plants when growing will be about half an inch apart each way as nearly as may be. If sown the first week of April, they will make fine plants for setting out in the open ground about the first of May, which will be soon enough for an early crop in most sections of the Northern States. The lettuce plants may either be planted out between the rows of cabbages or by themselves. The distance for the early varieties of cabbage is 2 feet between the rows and 16 or 18 inches between the plants. The lettuce may be planted closer than the cabbage, 14 or 15 inches; or, if planted in a bed by themselves, about 14 inches each way.

Tomato, egg and pepper plants require nearly the same treatment as cabbage and lettuce, though, if no artificial heat is used in the green-house, the tomatoes should not be sown before the second week of April, and the pepper and egg plants not before the first of May. These, like the cabbage and lettuce plants, are most conveniently handled by being sown in the shallow boxes, with two or three inches of soil. We use soap boxes cut in three; in each box we sow seeds sufficient to produce 1,000 or 1,500 plants. These, when an inch or so high, we replant in the same sized boxes, about 100 in each box, taking care to water and shade for a day or two when the sun is shining. These plants will be ready to set in the open ground from the 20th of May to the 1st of June. Lima beans, cucumbers and melons should also be sown in the green-house in the boxes above recommended, but not sooner than the second week in May; in ten days from time of sowing they will be fit to replant in boxes, say at two or three inches apart, and will have grown sufficiently to be set in the open ground by the first week in June, which will be quite soon enough, as these are plants of tropical origin, and are easily chilled if the weather is not settled and warm. In removing the plants from the boxes to the open ground the roots should be disturbed as little as possible, and planting always done, if practicable, in the cool of the evening. Press the soil firmly about the roots, and if the soil is dry water freely. The same rules apply to all vegetables here named, and all thus treated, by forwarding in the green-house, will give a crop, as already stated, from two to three weeks earlier than if sown in the open ground.

The cultivation of flowers in the green-house is generally supposed to require a large expe-

rience. This is not so; any careful person of good judgment, having access to the works now published, may successfully manage, in twelve months' practice, to make the green-house a steadily profitable business. My experience of over twenty years as a florist has shown me that just as soon as flowers are offered for sale, in any town with a population of ordinary intelligence the demand has a rapid and steady increase. Fortunately flowers are fashionable, and even those ladies who have no strong love for them, purchase them freely for the decoration of their rooms. It is not rare to see ladies of means striving to outdo one another in the abundance and beauty of their floral decorations. The rivalry here becomes just as lively as in bonnets, dresses or carpets, and the florist, like the man of dry goods, reaps the benefit.

How to make the green-houses that have been devoted to the grape business available for the cultivation of flowers, would require too much space here, the varieties being too numerous to allow us to give the necessary details for each. Suffice if to say that they may be made permanently profitable to those who will take the trouble to consult the works on the subject.

Achyranthes Lindenii.

Among the novelties offered by the florists this season is the *Achyranthes* (or *Iresine*) *Lindenii*, one of those plants now so much esteemed for their deeply colored ornamental foliage. The *Achyranthes Verschaffeltii*, introduced some years ago, never became very popular, on account of its unsatisfactory color as well as the difficulty with which it was kept over winter. The present species is from Ecuador, and is claimed to be more robust in habit, and to winter perfectly well in a cold green-house. It will be seen from the engraving which we give of a

ACHYRANTHES LINDENII.

small shoot, that the leaves are very different in form from the older kind. The color is, moreover, richer, it being of an intensely deep red. This, like all such new introductions, has to undergo the test of our hot and dry summers before its value can be ascertained. At the European shows it has been awarded several first prizes as an ornamental plant. As far as can be judged from the small specimens we have seen in the green-house, this new Achyranthes promises to be a valuable bedding plant.

The Ivy-leaved Toad-Flax.

The little Ivy-leaved Toad-Flax, *Linaria Cymbalaria*, is a native of the south of Europe, but has become perfectly naturalized in England, and is entirely hardy with us. Unlike the Toad-Flax we are most familiar with—the trouble-

VARIEGATED IVY-LEAVED TOAD-FLAX.

some weed known as Butter and Eggs and Ranstead Weed—this is a delicate trailer, which has long slender stems, neatly lobed leaves, which are dark green above, and purplish below, and very small lilac flowers. It shows to the best advantage when growing in positions where its branches can hang down, and where it grows wild it prefers crevices in rocks, old walls, and such situations. This habit adapts it for growing in suspended vases or baskets, as well as upon rock work, for which purposes it is quite popular under the names of Kennilworth Ivy, and Coliseum Ivy—though it is hardly necessary to say that it is not an Ivy. When grown in the border it makes a neat little mass; the long leaf-stalks become much entangled, and the plant is more compact and less graceful than when the branches have a chance to trail. Every season brings some novelties in the way of variegated leaves, and this year this well-known old plant is offered with leaves which are blotched with green upon a yellow ground. The engraving represents the variegated plant which differs from the common form only in its blotched leaves. Should the plant hold its variegation, and prove reasonably hardy, it will become very popular.

We are cautious about recommending plants with variegated foliage until they have been tested in out-door culture. Neither the descriptions of the European journals, nor the appearance of the plants in the green-houses, will allow us to judge of their fitness for our gardening. A large number, if not the majority of variegated leaves, become green before the summer is over.

The New Ivy-leaved Pelargoniums.

The Old Ivy-leaved Pelargonium (*Pelargonium peltatum*), or Geranium, as it is most commonly called, is a much neglected plant. When well grown it makes a fine plant for a hanging basket and is handsome for both its foliage and flowers. Within a few years new varieties have appeared which show a marked improvement in the flowers, and some have the now esteemed variegated foliage. *Duke of Edinburgh*, *Silver Gem*, and *L'Elegante*, all have their leaves margined more or less broadly with white. The last named, of which a small bit serves for an illustration, has large clusters of pure white flowers. *Princess Thyra* has flowers of light salmon color, with white center and a crimson spot on the upper petals. *Peltatum elegans* has fine foliage and mauve colored flowers. *Bridal Wreath* has, unlike the other kinds, hairy leaves and white flowers. Besides these, other new kinds are given in the florist's catalogues.

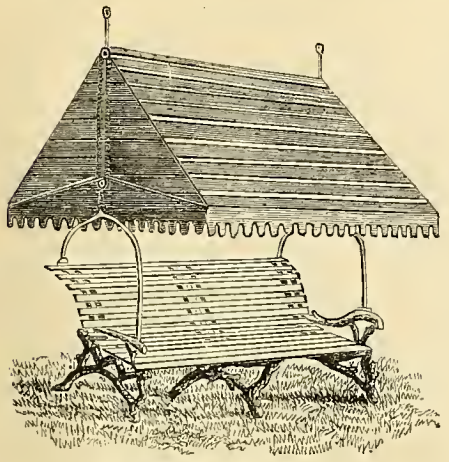
MANURE FOR THE GARDEN.—The letters of our correspondents indicate that there are some who have the impression that success in gardening depends upon the use of some especial manure. Good, well-rotted stable manure, and plenty of it, will grow almost anything in the garden or field. The point where most fail is in not using enough manure. For a large share of garden crops the soil cannot be too rich. This is especially the case with all succulent vegetables, such as cabbage, lettuce and the like. Spent brewers' hops are found to be a useful substitute for stable manure, but few are able to avail themselves of these. Guano is highly valuable, as are hen manure and fish guano. These are best composted with soil before using them. Night soil composted with *dry* earth is odorless, and is a fertilizer almost altogether neglected except in the expensive and uncertain form of poudrette. Earth-closets should be introduced for the sake of the manure, even if they were not advisable upon sanitary accounts. The use of dry earth in the hen-house not only serves to keep the atmosphere wholesome, but it allows the manure to become composted at the same time. Sods laid in a heap

IVY-LEAVED PELARGONIUM—*L'Elegante.*

and allowed to decay, or thrown into a pig pen, and there composted by the animals, make an excellent application, especially to old gardens needing fresh soil. Ashes and plaster, separately or together, may be applied to most crops with benefit. A well made phosphate is a valuable manure, but one should be careful to purchase only of manufacturers of good reputation. Finely ground bones applied directly, or used in compost, are excellent. Gardens which have been long in cultivation, often need lime

THE HOUSEHOLD.

(☞ *For other Household Items, see "Basket" pages.*)



A Shaded Garden Seat.

The engraving of a garden seat with a tent-like roof is from an article of English manufacture, that attracted much attention at the Paris Exposition. We do not know that it is sold in this country, but we introduce it here as a suggestion to the ingenious. A shaded seat of some kind would be found very useful by those who have croquet grounds, as well as by those who wish to enjoy sewing or reading in the open air, and cannot avail themselves of the shade of trees. The top of the one figured is made to incline backwards or forwards, as may be required. It would not take much contrivance to fit up a light awning that would be quite as useful if not so elegant as this. Where the seat is to remain stationary, the awning may be supported by poles driven into the ground.

Scouring Knives, etc.—Mrs. "O. A. H.," writes that for five years she has used water-lime for scouring knives, forks, tins, and the like. She says: "I have a box with a partition and keep the lime in one part and the cloths in the other. I wet a small cloth a little and dip it in the lime, and after the articles are well washed and wiped, I rub them until the spots are removed. Then I take a larger, dry cloth, dip it in the lime, and rub the articles until polished to suit me. Wipe off the dust from the knives and forks with a dry cloth, and they are ready to put away."

"Sun-light Oil"—A Household Humbug.

Most of the "Humbugs" exposed in the column especially devoted to rascality, affect only the pocket. Here is one which, worse than the highwayman, demands both your money *and* your life; and we notice it in the Household Department, as in this case mothers need especial warning. We have several times seen circulars proposing to sell recipes for preparing "Sun-light Oil," which should give a better light and be cheaper than any other illuminating oil. Now we have, from one in Wisconsin, who has invested $2 in the thing, the recipe itself, which reads as follows: "To make one gallon, take 3 quarts of BENZINE, 1 oz. Pulverized Alum, 1½ oz. Alcohol, 2 oz. Cream of Tartar, 2 oz. Sal-soda, 1 pint of Potatoes (cut fine), 2 tablespoonfuls of fine Salt, 2 drachms Oil of Sassafras, 4 drachms Gum Camphor. Dissolve the Alum in the Alcohol as much as possible; then add the Gum Camphor, stir for a few minutes; then add to one pint of the Benzine, stir it well for ten minutes; then add all the other ingredients, except the Benzine, stir well until it foams, then add the remainder of the Benzine; leave it open and exposed to the air; shake it occasionally, and in ten hours time it will be fit for use, although it should stand, if convenient, for 48 hours before using."

If this thing were not so wicked, we should ridicule its absurdity. It is an evident attempt to induce people to believe that, with the various additions and the prescribed mixings, the Benzine can be converted into something safe to be used for illuminating purposes. The Oil of Sassafras and Camphor are added to make the compound smell differently from pure Benzine, they are combustible and so far are not foolish; but the other ingredients, Alum, Soda, Cream of Tartar, Salt, and Potatoes! are all sheer nonsense. They have not the slightest effect in making the Benzine other than Benzine, and the person who proposed to add them is a fool if he did not know it, and a rascal if he did. These recipes are hawked about the country by agents, who by pleading the cheapness of the light doubtless sell a large number. We do not know of any law that exactly meets the case, though by any sensible justice an agent of this kind would be punished as a common nuisance. Recollect that this Sun-light Oil is Benzine, and as far as danger is concerned, nothing but Benzine—unsafe, explosive, deadly. Better that your children should have no other light than tallow dips, or go to bed at dark, than run the risk of sudden death, or what is worse, being maimed for life by this "Sun-light Oil." If you will use it, make your will, insure your life, and ask your minister to get ready a sermon on the "Mysterious Dispensations of Providence."

How to Cook Dried Beef.

BY MRS. "W. A. B.," WINDHAM CO., CONN.

The good qualities of dried beef as an article of food for the family, are not fully appreciated. In point of excellence, it is one of the nicest articles, when properly prepared, that we have in our store-room. It is also one of the most economical articles of food; quite a small quantity of dried beef, shaved very fine, and cooked with a nice gravy, will serve for meat for a family at very small expense. Then it is so convenient to have; always ready; always acceptable. To people who live convenient to market, it is not of so much importance; but to us, who live at a distance from towns, dried beef is one of the necessary articles in our bill of fare. We frequently entertain guests at our table who never have seen dried beef served other than as a relish for bread and butter; shaved and eaten without cooking. There are several methods of cooking it. Some prefer it cooked with a gravy of water, seasoned with butter, thickened with flour, and, perhaps, eggs broken in while cooking. Others cook it with crumbs of sausage, frying the sausage first, then adding the beef with water and thickening with flour. It is also very good cooked with a little sweet milk and sweet cream, the gravy being thickened with flour; allow it to boil once; that is all the cooking it requires. A dish of dried beef, properly cooked, served with toast, baked potatoes, and boiled eggs, is a very nice provision for breakfast or a dinner prepared in haste. We prefer to cure our own beef, as that bought is apt to be too salt. I find that if too salt, it can be remedied by soaking after cutting and before cooking, and adding a little white sugar while cooking, to restore the sweetness lost by soaking. Sugar-cured beef is much nicer than that cured with salt alone. I put mine into a sweet brine, such as is used for pork hams.

A Letter on Washing-day Matters.

BY FAITH ROCHESTER.

Dear Mary! I send you a sketch (fig. 1) of my new clothes pin bag. It is worn fastened about the waist, like an apron, when hanging clothes on the line. The material of mine is slightly worn blue denim, with a binding of light brown calico. When filled with clothes-pins, it is too heavy an apron for tying, so I sewed a buckle on the band, that persons of all sizes might wear it. The same strap serves to hang it up by, when not in use. The back of the pocket, cut like a small rounded apron, is narrower than the front by a few inches. It is fourteen inches deep, and holds, in winter time, besides the clothes-pins, a pair of clean flannel mittens, for use in putting out clothes. My mittens are made of old gray flannel, lined and bound with red. It is easy to cut your own pattern. Measure around your hand just above the thumb. Get the length of the whole hand, and the length from the base of the thumb to the end of the longest finger, also the length of the thumb. Then by the aid of the accompanying diagram (fig. 2), you can cut out a pattern. Be careful and not get the thumb hole too large for the thumb you have made. This is a good way to make mittens for children, and you can make very pretty ones for yourself of fine cloth lined with nice flannel and bound with fur.—Is it possible that you are still doing your washing in the old-fashioned way, without machinery or fluid? A good wringer is a great help. No woman, who can afford even one silk dress, ought to be without a wringer. The clothes and the woman who washes, will both wear longer with a wringer than without it. The price of all washing machines seems very high, and you can hardly induce a hired washerwoman to use one. I think people fail in the use of them, chiefly, from not having the suds strong and *hot*. A good suds, boiling hot, has a wonderful effect in loosening dirt, especially if mixed with good washing fluid. Then you must have sufficient motion to raise or squeeze out the loosened dirt. The especial object of rubbing on the board, I suppose, is, to force the suds between the fibres of the cloth and bring out the dirt. The chief advantage of a machine is that it allows you to use suds too hot for your hands.

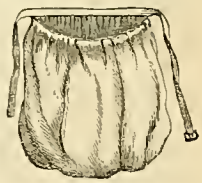


Fig. 1.—CLOTHES-PIN BAG.

My recipe for washing fluid is as follows: one-half pound of sal-soda and a quarter of a pound of borax, dissolved in one gallon of hot, soft water. Allow it to settle, and pour off into a jug for use. A gill of this, mixed with a pint of soft soap, or half a pound of bar soap, previously dissolved in hot water, is sufficient for a moderate washing.

Many housekeepers use unslacked lime instead of borax. This is cheaper, and as good for cleansing, perhaps, but the borax has an excellent effect upon the hands, softening and healing where there is a tendency to chap. It bleaches without injuring the clothes. Those who use the unslacked lime, generally boil the clothes before rubbing. They soak the clothes over night or wet them thoroughly, and soap the spots, before putting them in the boiler, then cover with soft water, add a gill of fluid, heat and boil twenty minutes, the fine clothes first and the coarser ones afterward in the same water. The clothes need very little rubbing after this, and are ready to be rinsed and dried.

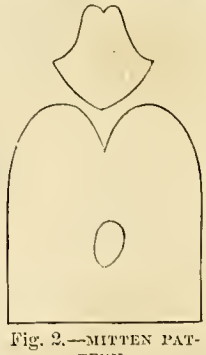


Fig. 2.—MITTEN PATTERN.

With my soda and borax fluid, I do the rubbing before boiling, but there is little or no rubbing to be done by hand if I am careful to have the suds in my machine strong and hot. I use two-thirds of the mixed soap and fluid in the rubbing, and save the remainder to put in the boiling. For the ordinary light washing of a family, I value the help of the fluid more than that of the machine; but for heavy woolen garments, bed quilts, etc., a machine seems almost indispensable. If you try my washing fluid without a machine, mix it with water as hot as the hands can bear, and let the clothes stand in it half an hour before rubbing. They will wash easily and be ready to boil. In using a machine, do not put in too many clothes at once.

You never tried to wash with hard water, I suppose. It is *dreadful*, unless the water is first softened with ley or soda. The usual way is to make white ley, by boiling ashes and water together. It is best to add this to the hard water when cold, and boil all together, skimming it while hot. Too

much ley injures the clothes and hands. I know no exact rule. But people living in a hard water region, should provide themselves with good rain-water cisterns as soon as possible.

A woman should dress for her work. You and I would agree that a washerwoman would look ridiculous, dressed in silk, with lace under-sleeves on her wrists, while working at her tub. I wonder what your ideal would be of a suitable dress for washing day, with its various exercises at the tub, over the stove, hanging out clothes, cleaning the floor, etc. Let me give you mine.

I wish you could go into my kitchen, as baby and I have just been, and see what I shall describe. The dress I saw five minutes ago, was an old one, somewhat faded and patched. It was made of thick goods, cotton and wool, a small plaid. The dress, lined throughout with drilling, was cut in Gabrielle (or basquine) style, a loose, easy fit. It was worn without corsets or whalebones. The waist and arm-holes were sufficiently loose to give the arms entire freedom of movement. The easy coat sleeves and the long sleeves of a warm under garment, were rolled above the elbows (not always necessary with a machine) and a large, gored bib apron was tied on. There was a dimity ruffle sewed in the neck of the dress. A woman without corsets is bad enough, but I have something more dreadful to tell about this washerwoman's dress.

It did not trail—did not even touch the floor—was not so much as of fashionable length for a short dress! Mary, the dress I have the hardihood to describe as suitable for kitchen work, on washing days at least, reached only four inches below the knees! The lower limbs were clothed with warm, lined pantaloons, of the same material as the dress, made very much like your husband's "peg-tops." The shoes were thick balmorals.

I sat on the wood-box, tossing baby for a frolic, and studied this costume, trying to think, without prejudices, how it could be improved or better answer the purposes of health, convenience, economy and comfort. I had seen the same washerwoman at the same tub, in an ankle dress, with and without hoops, and in a gymnasium dress. The ankle dress got drabbled and torn around the bottom, and neither it nor the gymnasium dress protected the ankles properly. This costume has every advantage. You cannot even say it is less beautiful, for one essential element of beauty is fitness. But you can not induce any ordinary Bridget to put it on. No indeed! The "lady in the kitchen" cannot afford to slight the Paris fashions. The last hired washerwoman I had, a pretty colored woman, came with a waterfall on her head, a waist so tight that it was bursting out all around (the unfortunate woman could not afford corsets, and did the best she could for her "figure," under the circumstances by dressing very tightly), and skirt trailing several inches behind. Of course the skirts were wet (her throat was bound up with flannel) and torn from the waist here and there. But I suppose she had an idea that she was fulfilling one of woman's chief duties — to look pretty!

Is it not about time to banish washing—the sloppy, steaming work of washing-day from our homes, and make a public affair of it? A friend writes me, "When Sunday night comes, I always begin to dread the morrow's washing, for our washings are always large, and, do the best I can, I invariably get very tired. A public laundry would be a great blessing."—I think she means a co-operative laundry, for she would hardly be willing to pay for her large washings the prices at most public laundries, that are not co-operative—at the rate of $1, or $1.25 per dozen. The papers have lately been taking notice of some statistics published by the Oneida Community, with reference to their washings. A New Haven paper says, "They find that the week's washing for two hundred and thirty-seven persons costs twenty-nine cents a head. As the average number of pieces washed for each member is eighteen, including heavy articles, this is astonishingly cheap. Why should not the horrors of washing-day in families be abolished by a system of intelligent co-operation? Comfort, health, and cleanliness would all be promoted by it, and a large amount of money and labor saved."

The washing apparatus at that Community is on the largest and best scale of any in this country. The hard work is done by steam. The revolving wringer alone cost $250, and the whole expense of the brick building for the laundry, and of the machinery for washing, wringing, drying and ironing was $6,092. In cities there could be found a sufficient number of families to combine and establish a laundry as good as this. In villages there might be such co-operation as would materially lessen the labors and expenses of family washing, without so great an outlay of money. The expense of the building and apparatus might be divided into shares and each member of the association could own one or more. The apparatus for doing a family washing comfortably at home is seldom less than $25, including machines for washing and wringing. If fifty families should each put in this sum, it would raise a capital of $1,250. What could be done with this sum in the way of establishing a village laundry? The washing might be done at a fixed rate—say seventy-five cents a dozen. After paying the current expenses for soap, fuel, labor, etc., there would remain a surplus of funds (if the concern was properly managed), to be divided at stated periods among the members. In this way the members of the co-operative laundry association, though paying a nominal price of seventy-five cents a dozen for washing and ironing, would really get the work done for considerably less.

My object was not so much to propose a definite plan, as to set women to thinking of some reasonable way of escape from unnecessary drudgery—to give a little push to a ball already set in motion.

How to have a Variety in Food.

BY MRS. "H. C. B."

There are two ways of having variety: one, that of heaping upon one's table a great many kinds of food at one meal, so many that it is impossible to do more than to taste of each one; the other to have but a few kinds at one time, but so varied from meal to meal that the same thing does not appear upon the table very often. The latter seems to me to be the better way on the score of economy, which the larger portion of farmers' wives probably find it necessary to study to a greater or less extent. Besides this, a great jumble of food is injurious to the digestion. I will explain what I mean by the best kind of variety.

Bread, either wheat or rye, should be a constant article of diet, and should be made fresh three times a week. Occasionally raised biscuit, or soda biscuits, can be substituted, or some form of corn bread, or Graham bread, gems, or some kind of muffins. The plain white bread will probably hold its place as the standard kind for a long time to come, and its substitutes should be so judiciously introduced as to make all kinds seem ever fresh and new. Meat ought, also, to be varied, both in its kind and in the manner of cooking it. Beef is acknowledged to be superior to other meats, but it should be cooked in different ways. Roast beef and well-broiled steaks will always stand first in general estimation; but boiled beef, beef stew, and beef soup, help to variety, keep up the appetite for the other kinds, and are more economical than the constant use of such pieces as are needed for good roasts and broils. Many families are in the habit of having a nice piece of roast beef for their Sunday's dinner, and bringing it on cold every day thereafter, until it is vanquished by the force of sheer persistence. Such a piece of beef can be used in many ways. Was it quite rare, to suit the tastes of some members of the family? Then for Monday's dinner cut off some slices of the rare part, lay them on the gridiron over some very hot coals, let them brown upon both sides, and bring them directly to the table with a little butter upon each slice.

The more thoroughly cooked part can be made into several kinds of hash; coarse hash, with or without potatoes; fine hash, with or without potatoes, warmed in the mass or made into small thin cakes, and browned in a little hot lard; fine hash, with potatoes, spread upon a piece of pastry rolled thin, then rolled up tight and baked; or fine hash, without potatoes, put upon toast. A savory stew can also be made of bits of cold beef by the addition of two or three onions, as many tomatoes, or some canned tomato, and a sufficient amount of seasoning. A pie can be made of cold beef, either with common pastry for crust, or layers of mashed potatoes, or boiled rice, alternated with the meat.

A good many farmers' families are out of the reach of a market or a butcher's wagon, and are obliged to subsist, as to meat, the year round upon ham, salt pork, and chickens. The ham is always fried, the pork is always boiled or fried, swimming in grease, and the chickens are cooked in some one way. The ham might be boiled or broiled, or cut in small bits and made into dumplings, the crust for them being like soda biscuit, and steamed or baked. Cold pieces of ham are nice cut in small mouthfuls, and warmed with eggs; they are also very palatable fried in batter, like veal cutlets.

The methods of cooking chickens and pork are numerous, and most housekeepers know them, but fall into the habit of cooking them in some stereotyped way, so that they never seem to have a variety. It is the same with vegetables. The first care is, in the summer and fall, to make provision for winter; this should be plentiful and varied, both in vegetables and fruits. Dried or canned green corn, and canned tomatoes, and the many kinds of sour and sweet pickles, are great additions to the winter dinner table; but my opinion is that they are better appreciated if the same kind does not appear upon the table oftener than once a week. Potatoes seem an essential part of every dinner, and one can make such a rotation of turnips, parsnips, onions, cabbages, beans, corn, beets, etc., according to the nature of the dinner, as never to get tired of any one vegetable.

In the matter of canned fruit, preserves, cakes, pies, and puddings, the same rule for variety should be observed. A housekeeper should not fall into the common error of making year after year the same kind of preserves, the same kind of cake, and the same kind of pies.

It is a good plan to keep a written recipe book, and to add to its contents occasionally such recipes as are known to be good, and then to use them all in their own time, not settling down upon a very few. By canning fruit with but little sugar, the winter routine of pies can be very much relieved. Cherry, raspberry, currant, peach, and blackberry pies, can take their turns with the mince, pumpkin, and apple, usually supposed to be exclusively winter pies, and there is little difference between them and those made of the fresh summer fruits. Apples, which very few farmers are without, are capable of being made into most delicious sauces, jellies, preserves, pies, and puddings; and yet they are often as bad as wasted by being made into miserable, lumpy apple sauce, with the flavor all washed out of them by the admixture of too much water, and into hard, tough, indigestible pies.

Citron and Raisins. — A Maryland Housekeeper asks us to tell her how she can prepare green citron to be used in cakes, and how to make raisins from her grapes. The citron used in cake, etc., is the preserved rind of a fruit like a large lemon. The citron melon cannot be used as a substitute, as it has no aromatic quality. None of our American grapes will make raisins.

English Seed Biscuits.—1 lb of flour, ¼ lb of sugar, ¼ lb of butter, ½ oz. of caraway seeds, 3 eggs. Roll out, cut round, and bake in a moderate oven.

Cinnamon Cakes.—By Mrs. L. A. G. 1 cup of sugar; ¾ of a cup of molasses; 1 cup of butter; 1½ tablespoonfuls of ground cinnamon; 2 level teaspoonfuls of soda, dissolved in 6 large tablespoonfuls of warm water; stir well, and add flour enough to allow to roll quite thin; cut out with a biscuit cutter and bake in a quick oven.

BOYS & GIRLS' COLUMNS.

Under Broadway.

You of course all know that Broadway is the principal street of New York, and some of you have heard of number 245 Broadway. I said, last month, something of the sights to be seen on the street. Indeed, I think that a walk up or down Broadway, on a pleasant day, is more interesting than any show I ever saw. It now appears that to see all the sights of Broadway one must go down underground. In a very quiet way, there has been a company of men at work making a large tunnel or bore directly under the street. It went by the office of the *Agriculturist*, before our friends there, who think they are pretty wide-awake, knew anything about it. Well, I don't wonder, as all the work was done 25 feet under the surface, and the earth loosened in digging was all taken out at the basement of a large marble building, in so quiet a manner that only those in the secret knew anything about it. There the men are at work like moles or gophers, slowly digging a hole 8 feet in diameter. You will wonder what they are doing it for. They are making a big blow gun! I suppose that every boy has blown peas through a tube. This underground channel, which by the way, is all walled with brick or iron, is the tube, and an immense fan driven by a steam engine does the blowing...."*The peas!*"....Oh, they are cars that are blown from one end to the other. The affair is called the Pneumatic Transit. Pneumatic is pronounced *new-matic*, and is from a Greek word meaning air. The company proposes to send parcels, and people, too, I believe, from one point to another, more rapidly than can now be done. A similar thing is successfully at work in London. It is, in fact, a sort of sailing by land with the breeze quite under control. WILL WARREN.

Bees are such remarkable insects that their habits have interested the intelligent and scientific, and it is not strange that they should have given rise to superstitions in the minds of ignorant people. Quite a volume might be filled with the curious legends in various countries about bees. In some parts of England, bees must always be sold; if given away, neither the giver nor the receiver will have luck. Elsewhere it is believed that bees celebrate Christmas Eve by making agreeable music at twelve o'clock at night. If a man and wife quarrel, it is said that bees will leave. In some European countries it is thought necessary to tell the bees if a death occurs in the house; elsewhere the hives are hung with crape when there is a death, and with red if there is a marriage. It is believed that if these things and many others are not observed, the bees will desert their hives. Common schools and general intelligence do away with all such notions as these.

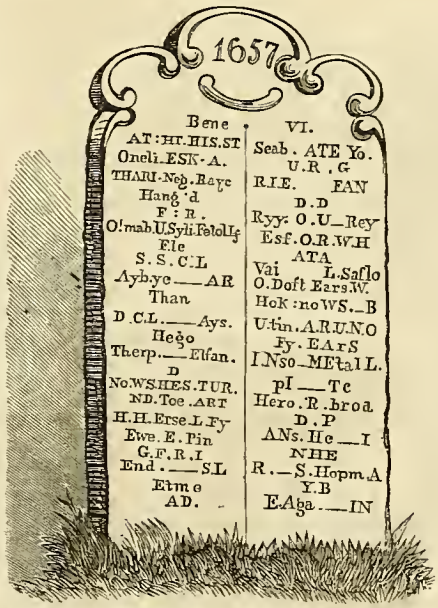
What will Fit Him to be a Farmer?

A boy 15 years old, who is at school, asks us what books we would recommend him to read, to fit him to be a farmer. If our young friend is at a common school we advise him to give his attention in the first place to thoroughly mastering all the studies that are taught there. Do not, in a haste to build your house, forget to lay a good foundation. The great trouble with many men of excellent talents is, that they had not the opportunities for a good elementary education—the foundation—or if they had them, they neglected them for something more attractive. Do not let the desire to be a good farmer, or any thing else, turn your attention from the common school studies. No accomplishments, or picked up bits of science can answer in their place. These being attended to, then we would advise such reading as will teach the laws that govern the common operations of the farm. One of the best books for an intelligent boy is Thomas' Farm Implements, which is full of interest, if he would know the why and wherefore of things. The first principles of Mechanics, or Natural Philosophy, as it is often called, are given, and their application to various kinds of farm work shown. We hope that there are many boys who propose to be farmers and we advise them, and indeed other boys, and the girls too, to learn the laws of motion and gravitation, the properties of air, water, and steam, etc., as they will not only be of great use to them in all mechanical operations, but make them more intelligent men and women.

"Professor," said a student in pursuit of knowledge concerning the habits of animals, "why does a cat, while eating, turn her head first one way and then the other?" "For the reason," replied the Professor, "that she cannot turn it both ways at once."

Do you know any word that contains all the vowels? Unquestionably.

A young man of limited intelligence, who was recovering from a long fit of sickness, being told by his physician that he "might now venture on a little animal food," exclaimed: "No, you don't, doctor; I've suffered enough on your gruel and slops, and you don't get me to touch any of your hay and oats."



No. 375. *A Word Puzzle.*—This is *said* to be an epitaph found in an old English church-yard. It is easy enough when you get fairly started.

No. 376. *Arithmetical Puzzle.*—Suppose the 9 digits (figures 1 to 9), were placed in the form of a square, in what order must they stand so that any three figures in a direct line when added together will make just 15?

No. 377. *Illustrated Rebus.*—The rebus makers should be very excellent men, if they follow all the maxims they illustrate. Here are more words of wisdom.

No. 378. *Arithmetical Problem.*—S. Baird sends us this and No. 376, taken from an arithmetic printed early in the present century. A man driving his geese to market was met by another who said, "Good morrow, with your hundred geese." He replied, "I have not a hundred, but if I had half as many more as I now have, and two geese and a half, I should have a hundred."—How many had he?

No. 365. *Arithmetical Problem.*—A farmer with $100 wants to buy 100 head of stock, is offered cattle at $10, hogs at $3, and sheep at 50 cents. How many will he get of each?

How the Chinese Cultivate and Make Tea.

BY "CARLETON."

I dare say that two-thirds of the many hundreds of thousands of persons who read the *Agriculturist* drink tea at least once a day. They know that it comes from China and Japan, and I doubt not that all will be interested in hearing a short story about the cultivation of the plant, and the preparation of the tea leaves, for that which we call tea is the leaf of an evergreen shrub. We can make tea from any plant. In my boyhood I had to drink catnip and thoroughwort tea when I was sick, and it was so bitter that I had to hold my nose and swallow with all my might; but the teas of China are of another sort. One kind is from the plant called *Thea bohea*, and another, from the *Thea viridis*. There are many varieties. Some thrive best on gravelly soils—while others need a light, loamy soil. Those planted on the hills and among the rocks are generally more mildly flavored than those grown in the meadows.

Think of yourselves as being in China among the tea gardens. You see the full grown shrubs are about seven feet high. If you would know the exact shape of the leaves, examine the grounds in the tea-pot, some evening after supper, and you will find that they are oblong. A full-grown leaf is an inch and a half or two inches in length, but most of the leaves are picked before they are fully matured.

The southern slopes of the hills in the interior of China are covered with tea gardens. You see Chinese men and women wearing blue cotton frocks, and queer bamboo hats, taking young plants from a nursery bed where they have been started, just as we start young apple trees, and transplanting them in rows. They have hoed the ground well over with great clumsy hoes. They thrust a long-bladed knife into the ground with one hand, and thrust the plant into the hole and press the earth around it. They will set out many thousand plants in a day.

They give them close attention, watering them and keeping down all the weeds. You never see tea gardens overrun with pig-weeds, or with witch grass, and chick-weed. They are too good farmers for that. They say that the plant wants all the nourishment it can get from the soil to make it vigorous and the leaves tender, for the tender leaves have a mild flavor; and those which are of mild flavor command the highest price.

We Americans, may take lessons of the Chinese in garden culture and agriculture. They beat us all out in raising vegetables. Everything that can increase the fertility of the soil is preserved, and so their tea gardens and orchards are always in superb condition.

You notice that the plant may be propagated either by sowing the seed or by cuttings or slips. Some of the tea growers sow seeds in a mellow garden bed and when the shrubs are about six inches high, transplant them, cutting off some of the sprouts and using them as slips.

It is a hardy plant and is grown with great ease. In the climate of Central China, which is about like that of Alabama and Mississippi, the blossoms appear in winter, and the flower is very much like that of a wild rose. A tea garden in bloom is a beautiful sight.

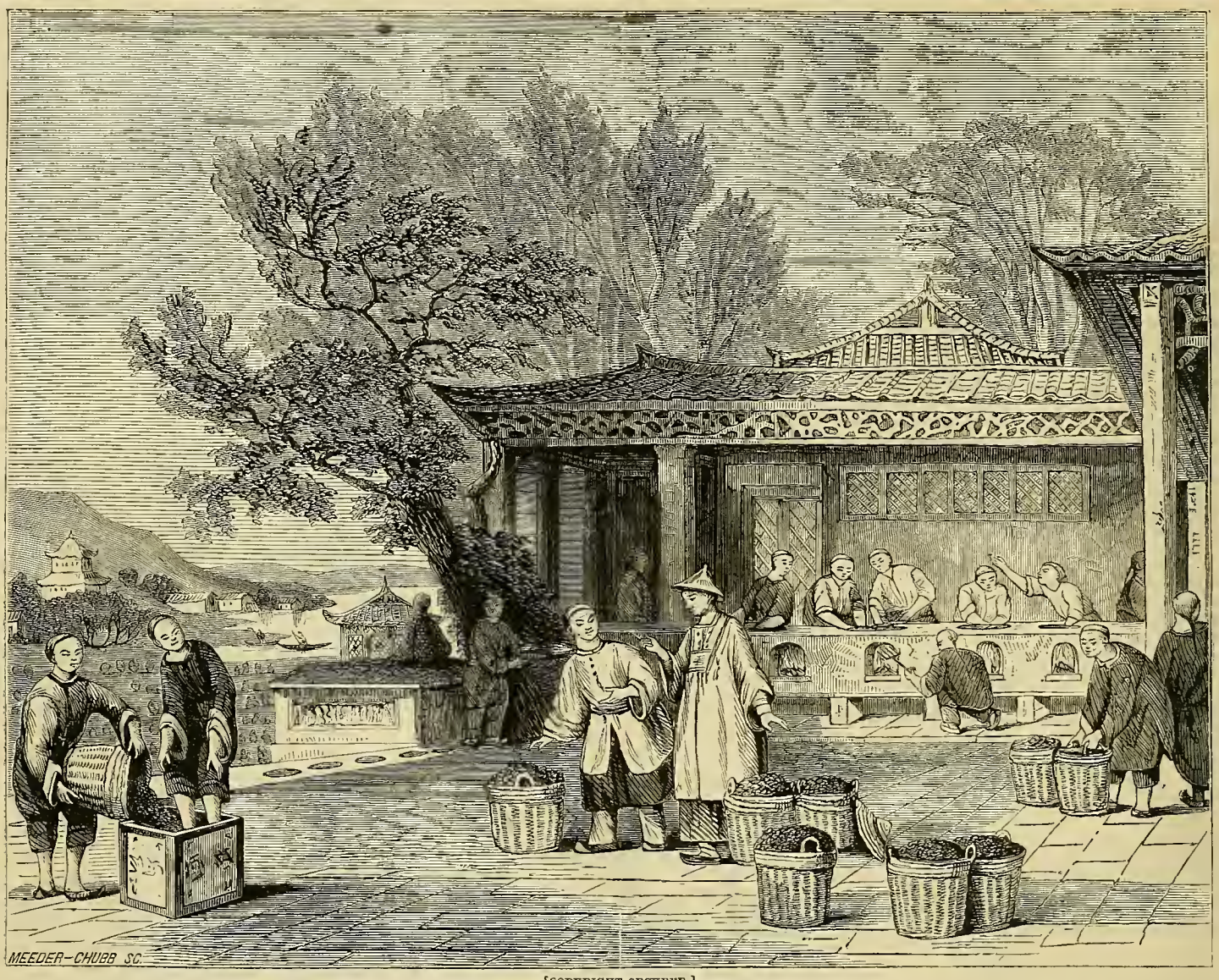
If you were to sail up the Yangtse river in February or March, to the great Poyang Lake, and then glide along its verdant shores, you would behold a charming scene—sunny hill-sides covered with blooming tea gardens,—towns and villages nestled in the corners—white pagodas crowning the hills, hundreds of junks afloat upon the calm waters, and thousands of men, women, and children, at work in the gardens, hoeing the ground, setting out young plants, or picking the leaves.

The first crop is the best. It is gathered with great care—each leaf being carefully picked between the thumb and finger. Only the tenderest leaves growing on the youngest twigs are gathered at the first picking.

A week or two later the next crop is gathered, then the third, and sometimes the fourth. The last pickings make up the poor qualities of tea. A pound of the first picking is worth fifteen or twenty of the last. We never see any of the first quality in our grocery stores. It is nearly all consumed in China by the wealthy classes—the mandarins and rich merchants. A mandarin invited me to dine with him one day, and I drank such tea as I never expect to taste again, unless I visit China once more. It was so mild, pleasant, and delicious, and had such a charming flavor that I did not much wonder that a mandarin could drink sixty cups of it during the day. Common tea was not much better than catnip, after that dinner in the palace of the Governor.

To see the preparation of the tea for market we must step into the building where the leaves are dried. The engraving on the next page shows one of them. You notice a large number of sheet-iron or copper pans, with charcoal fires beneath them. Coolies come trooping in from the gardens with a bamboo pole over their shoulders from which hang baskets filled with tea leaves.

They pour these into the pans; other coolies are stirring the leaves and rolling them in their hands. The fire in the first set of pans is not very hot. They want to get all the moisture out of the leaf, and if they were to dry it too rapidly, it would become brittle. After drying awhile in the first set, they are put into another set, and then into a third, and dried until every particle of moisture is evaporated. If this were not done, the leaves would soon mould in the tea chest. When the drying is completed, the tea is taken out into a basket, ponred into the chest and pressed in by a cooly who tramples it beneath his bare feet!...."*Ugh! the nasty beast!*"....



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DRYING AND PACKING TEA BY THE CHINESE.—*Drawn and Engraved for the American Agriculturist.*

Is that your exclamation? Of course he washed them, but even if he did n't, I dare say the tea is as clean as the champaign that men smack their lips over and pronounce superb; for, if you were to visit France during the vintage season, you would see bare legged men jumping up and down in a tub filled with grapes, crushing the delicious fruit with their feet. Or, if you knew all about the making of molasses and sugar, candy would not be quite so nice as it now is. When the tea chest is full, the lead lining is soldered, the cover nailed down, and the paper with the queer Chinese characters is pasted on, and the "chop" is ready for market. The chests are lined with lead to preserve the tea from gathering moisture while in the stores, or while being exported to foreign countries. The leaves take in moisture easily, and they would soon become as musty as damaged meadow hay, if this precaution were not taken. The atmosphere in China during the summer months is full of moisture,—so full that the people who live in Shanghae have to kindle fires in July and August to dry up the dampness. Clothes mould in the closets. Put your boots aside for twenty-four hours and they will be covered with green fungus, just such as you see in a mouldy cheese. If there are two or three cloudy days in succession, every thing becomes mouldy, musty, and rusty. The books on your parlor table are covered with mould, unless wiped carefully every day.

Because China has such a damp climate the tea plant thrives. The dampness makes the leaves tender. The plant cannot be profitably cultivated in a dry climate.

It would undoubtedly grow well in Georgia, Alabama, Mississippi, and perhaps in Oregon, but so long as there are four hundred million of people in China—most of whom work for a living, and work for very little pay, we shall not be able to make much headway cultivating tea in this country where labor is so dear.

The Chinese are extravagantly fond of tea, and they drink it at all hours of the day and night. The tea saloons are always open. You sit down to a small table in a large hall where there are several hundred pig-tailed men laughing, talking, and drinking their favorite beverage. It is not green tea, but black. They do not often touch the green varieties. You call for a cup of tea, and a little boy, with a little cue, like a pig-tail, sprouting from the crown of his head, brings you two cups and a saucer. You wonder what the second cup with a cover is for. But see! He puts a small quantity of tea, just a pinch, into one cup, pours the boiling water upon it and puts on the cover to keep in all the steam and aroma, lets it stand a minute or two, then drains it into the other cup. It looks very weak and has n't hardly any color. You fear it is as "weak as dish-water." But just taste it. Isn't it delicious? You sip it—a little at a time, and smack your lips every time you swallow. You think of the Indian who wished his neck was half a mile long so that he could taste the whiskey all the way down! You can drink it all day and not get drunk, and as soon as your cup is empty you call for more. You drink it without milk or sugar, for that would spoil it. You notice a large jar beneath the table, and that the boy turns the grounds from your cup into it. When it is full it is taken out-doors and the contents dried in the sun. Then they are taken into the preparing room where they are colored with Prussian blue, Turmeric, Gypsum, and other things, dried in the pans, trampled a second time beneath the heels of a cooly, and sent over for us to drink! Even then it is better for us than whiskey, and no dirtier than many other things that we put into our months. Most of the teas sent to this country are of low cost, and of a poor quality. The Chinese drink the best! They do not make it so strong as we do, and experience no bad effects from its use.

All teas are purchased by sample, and the English and American merchants in China have tasters—young men whose sole business is to judge of the qualities of tea. You enter a tasting room and at the first glance think it a pantry, a china closet, and a grocery store, all in one; there are so many cups, covers, and packages of tea on the shelves. The young man has forty or fifty cups before him, and as many samples of tea. He weighs out a small quantity for each cup, and steeps each parcel so many seconds by the watch, and then tastes of each cup, and so judges of its strength and quality. These tasters get great pay—some of them five and even ten thousand dollars a year in gold. But they mortgage their health and lives. This constant tasting, after awhile, tells upon their nervous system, and the chances are that they will shorten their days. If any young man reading this has a desire to drop every thing and rush off to China to be a tea taster, he had better think twice, for very few tasters are wanted, and the large salary is dearly earned if loss of health and a shortening of life are the accompaniments, for among the best blessings bequeathed by our Heavenly Father is that of good health.

Answers to Problems and Puzzles.

No. 371. A man intent on being over ruled in all his deeds, by principle alone, is placed beyond the reach of fortune.——A man in tent on B in G over rule-D in awl-HIS deeds BY prince eye PLE ale-on-E is placed beyond the reach of fortune.

No. 372. Fill the 3 gallon vessel and pour it into the 5 gallon vessel, refill the 3 gallon vessel and fill up the 5 gallons. Empty the 5 gallon vessel into the keg: pour the gallon which remains in the 3 gallon vessel into the now empty 5 gallon one, draw the 3 gallon one full again and add it to the gallon already in the 5 gallon vessel, and there will be 4 gallons left in the keg and 4 in the 5 gallon vessel.

No. 373. Many grow insane, overcome, and given over to despair on beholding the failure of long cherished undertakings, but a good man cannot be thus overwhelmed.——Men, negro-in-seine-over-come, and given-over-two D's, pear-on-B-holding thief, ale ewer of, long-cherished-under-Ta, Kings, but a good man can knot bee thus-over-whelmed.

No. 374. One woman had 5 eggs and the other had 7.

Office of FISK & HATCH,

BANKERS AND DEALERS IN GOVERNMENT SECURITIES.

No. 5 NASSAU STREET, NEW YORK.

February 15th, 1870.

The remarkable success which attended our negotiation of the Loans of the CENTRAL PACIFIC RAILROAD COMPANY and the WESTERN PACIFIC RAILROAD COMPANY, and the popularity and credit which these Loans have maintained in the markets, both in this country and Europe, have shown that the First Mortgage Bonds of wisely-located and honorably-managed Railroads are promptly recognized and readily taken as the most suitable, safe, and advantageous form of investment, yielding a more liberal income than can hereafter be derived from Government Bonds, and available to take their place.

Assured that, in the selection and negotiation of superior Railroad Loans, we are meeting a great public want, and rendering a valuable service—both to the holders of Capital and to those great National works of internal improvement whose intrinsic merit and substantial character entitle them to the use of Capital and the confidence of investors—we now offer with special confidence and satisfaction the

FIRST MORTGAGE BONDS

OF THE

CHESAPEAKE AND OHIO RAILROAD COMPANY.

The Chesapeake and Ohio Railroad, connecting the Atlantic coast and the magnificent harbors of the Chesapeake Bay with the Ohio River at a point of reliable navigation, and thus, with the entire Railroad system and water transportation of the great West and South-west, **forms the additional East and West Trunk Line**, so imperatively demanded for the accommodation of the immense and rapidly growing transportation between the Atlantic seaboard and Europe on the one hand, and the great producing regions of the Ohio and Mississippi Valleys on the other.

The importance of this Road as a new outlet from the West to the sea magnifies it into one of national consequence, and insures to it an extensive through traffic from the day of its completion; while, in the development of the extensive agricultural and mineral resources of Virginia and West-Virginia, it possesses, along its own line, the elements of a large and profitable local business.

Thus the great interests, both general and local, which demand the completion of the CHESAPEAKE AND OHIO RAILROAD to the Ohio River, afford the surest guarantee of its success and value, and **render it the most important and substantial Railroad enterprise now in progress in this Country.**

Its superiority as an East and West route, and the promise of an immense and profitable trade awaiting its completion, have drawn to it the attention and co-operation of prominent Capitalists and Railroad men of this City of sound judgment and known integrity, whose connection with it, together with that of eminent citizens and business men of Virginia and West-Virginia, **insures an energetic, honorable, and successful management.**

The Road is completed and in operation from Richmond to the celebrated White Sulphur Springs of West-Virginia, 227 miles, and there remain but 203 miles (now partially constructed) to be completed, to carry it to the proposed terminus on the Ohio River at, or near, the mouth of the Big Sandy River, 150 miles above Cincinnati, and 350 miles below Pittsburgh.

Lines are now projected or in progress through Ohio and Kentucky to this point, which will connect the **Chesapeake and Ohio with the entire Railroad systems of the West and South-west, and with the Pacific Railroad.**

Its valuable franchise and superior advantages will place the CHESAPEAKE AND OHIO RAILROAD COMPANY among the richest and most powerful and trustworthy corporations of the country **and there exists a present value, in completed road and work done, equal to the entire amount of the mortgage.**

The details of the Loan have been arranged with special reference to the wants of all classes of investors, and combine the various features of convenience, safety, and protection against loss or fraud.

The Bonds are in denominations of

$1,000 $500, and $100.

They will be issued as *Coupon Bonds, payable to Bearer*, and may be held in that form; or

The Bond may be *registered* in the name of the owner, with the coupons remaining payable to bearer attached, the *principal* being then transferable only on the books of the Company, unless reassigned to bearer; or

The coupons may be detached and cancelled, the Bond made a *permanent Registered Bond*, transferable only on the books of the Company, and the interest made payable only to the registered owner or his attorney.

The three classes will be known respectively as:

1st. "Coupon Bonds payable to Bearer."
2d. "Registered Bonds with Coupons attached."
3d. "Registered Bonds with Coupons detached," and should be so designated by Correspondents in specifying the class of Bonds desired.

They have **thirty years** to run from January 15, 1870, with interest at six per cent per annum from November 1, 1869. PRINCIPAL AND INTEREST PAYABLE IN GOLD IN THE CITY OF NEW YORK.

The interest is payable in MAY and NOVEMBER, that it may take the place of that of the earlier issues of Five-Twenties, and suit the convenience of our friends who already hold Central and Western Pacific Bonds, with interest payable in January and July, and who may desire, in making additional investments, to have their interest receivable at different seasons of the year.

The Loan is secured by a mortgage upon the entire Line of Road from Richmond to the Ohio River, with the equipment and all other property and appurtenances connected therewith.

A SINKING FUND OF $100,000 PER ANNUM IS PROVIDED FOR THE REDEMPTION OF THE BONDS, TO TAKE EFFECT ONE YEAR AFTER THE COMPLETION OF THE ROAD.

The mortgage is for $15,000,000, of which $2,000,000 will be reserved and held in trust for the redemption of outstanding Bonds of the *Virginia Central Railroad Company*, now merged in the CHESAPEAKE AND OHIO.

Of the remaining $13,000,000, a sufficient amount will be sold to complete the road to the Ohio river, perfect and improve the portion now in operation, and thoroughly equip the whole for a large and active traffic.

The present price is 90 and accrued interest.

A Loan so amply secured, so carefully guarded, and so certain hereafter to command a prominent place among the favorite securities in the markets, both of this Country and Europe, will be at once appreciated and quickly absorbed.

Very respectfully,

FISK & HATCH,

Bankers.

P. S.—We have issued pamphlets containing full particulars, statistical details, maps, etc., which will be furnished upon application.

☞ We buy and sell Government Bonds, and receive the accounts of Banks, Bankers, Corporations, and others, subject to check at sight, and allow interest on daily balances.

ELGIN WATCHES

MANUFACTURED BY

The National Watch Company.

All the Grades of the Elgin Watches

INCLUDING THE

"LADY ELGIN,"

READY FOR

SPRING TRADE.

The Company also call the attention of Watch buyers to the fact that the Elgin Watches now offered have several peculiar improvements over all others and also a new

PATENT DUST EXCLUDER,

so constructed as to enclose the works, and form a protection against dust, enabling the movement to remain in order without cleaning double the time that a watch will ordinarily run without this protection.

The Company feel confident, after having had their Watches three years in market, and selling many thousands of them in all parts of the country, that the

Elgin Watches are the best time keepers now offered to the American public, for either Ladies' or Gentlemens' use, Railway or other uses.

Over Five Hundred Dealers

in various parts of the land have unreservedly endorsed them. They are in use upon numerous lines of Railway, including the **Union Pacific** and **Pennsylvania Central,** and officers of these roads, with other prominent R. R. officials, endorse them as the best Watches for the use of R. R. employees and travelers, yet introduced.

The following are presented as specimens of these testimonials:

UNION PACIFIC R. R., OFFICE OF GEN'L SUP'T, OMAHA, Dec. 16, 1869.

Hon. T. M. AVERY, President National Watch Co., Chicago, Ill.:

Dear Sir:—During the month that I have carried one of your "B. W. Raymond" Watches it has not failed to keep the time with so much accuracy as to leave nothing to desire in this regard. For accuracy, in time-keeping, beauty of movement and finish, your Watches challenge my admiration, and arouse my pride as an American, and I am confident that in all respects they will compete successfully in the markets of the world, with similar manufacturers of older nations. They need only to be known to be appreciated. Yours, most respectfully,

C. G. HAMMOND, Gen'l Sup't.

OFFICE OF THE HUDSON RIVER RAILROAD, Gen'l Sup't, New York, Jan. 17, 1870.

T. M. AVERY, Esq., President National Watch Co.

Dear Sir:—The Watch made by your Company which I have carried the past two months, has kept excellent time. I have carried it frequently on engines, and have been on the road with it almost daily. During this time it has run uniformly with our standard clock.

Truly yours,

J. M. TOUCEY, Gen'l Sup't.

The following dealers also, in various parts of the country, have certified that they consider the Elgin Watches to be all that the Company have advertised them, as better finished, more correct and durable, than any in market of similar price, and that they have great confidence in recommending them to the public on account of their general merit.

Wheeler, Parsons & Co.,	N.Y.	C. Hellebush,	Cincinnati.
Warren, Spadone & Co.,	"	E. Jaccard & Co.,	St. Louis.
Middleton & Bro.,	"	N.E.Crittenden&Co.,	Clevel'd.
T. B. Bynner,	"	M. Burt,	"
Henry Ginnel,	"	Morse, Reddin & Hamilton,	
Geo. W. Pratt & Co.,	"		Chicago.
Scott, Barrett&Co.,	Pittsburgh.	J. H. Hense,	Denver, Col.
J. R. Reed & Co.,	"	M. M. Baldwin & Co.,	San
Dahme & Co.,	Cincinnati.		Francisco., Cal.
Jenkins & Hatch,	"	Koch & Dryfus,	New Orleans.
C. Oskamp,	"	And over 400 others.	

Various grades and pieces made to suit different tastes.

No movements retailed by the Company.

☞ Call on your Jeweller and ask to see the Elgin Watches.

Business Office and Salesroom National Watch Company,

159 & 161 Lake St., Chicago, Ill.

MINTON'S ENCAUSTIC TILES.

For Vestibules, Halls, Hearths, Conservatories, &c.
Garnkirk Chimney Tops, Plumbers' Materials, &c. MILLER & COATES,
279 Pearl St., New York.

IMPORTANT TO FARMERS!

Entered according to Act of Congress, by D. W. RAMSDELL & Co., in the Clerk's Office of the District Court of the United States for the Southern District of New York.

The Norway Seed Oats, Startling Frauds in the sale of Counterfeit Seed, Interesting Facts, Profitable Farming, How to Pay Mortgages, Where to get Genuine Seed, Who Recommends Them.

We have been to considerable expense in putting farmers on their guard against the frauds that were being perpetrated in the sale of Seed Oats, but not until recently did we realize the magnitude of these swindles. H. W. Marshall, of Cincinnati, Ohio, has issued a circular much of the contents of which has been copied from ours, representing that he is our authorized agent for the West, for the sale of the Ramsdell Norway Oats seed. We are informed by reliable parties in Cincinnati, that he has sent out over *Half a Million* of these circulars, and is receiving thousands of orders. He is a swindler, has never had any of our seed, nor any communication with us.

N. P. Boyer & Co., publishers of a country paper somewhere in Penn. issued a circular in a similar manner, claiming to have our seed, but when we exposed the fraud they changed their tactics, and are now advertising that they import seed from Norway. This dodge is so ridiculous, in view of the fact that our seed never came from Norway, and that we are filling orders from that country, that intelligent farmers are not likely to be deceived by it. Samples sent us, which came from them, have been pronounced New Brunswick Oats by hundreds of farmers who examined them. Other parties are selling what they claim to be our seed, at prices varying from $1.50 to $6 per bushel, *all warranted, of course*, and some use our name. Some of these parties are honest, but were themselves deceived in the purchase of seed last year. Out of over twenty samples sent us of Norway Oats, now being advertised, **only two were genuine.** We cannot go through the whole list, but the above facts are sufficient. We have only to request that those who buy of such parties, and are disappointed in their crops, will not condemn our seed, as some did last year.

Facts and figures have already been published, showing by as reliable testimony as can be found in the land, that the Ramsdell Norway Oats will produce from twice to three times as much to the acre, are heavier, and of better quality, stand up better, and are more hardy than any other known oats. They have been awarded forty-five first premiums, at the late State and County fairs, in competition with all the varieties now grown, which is a larger number than was ever awarded to any agricultural improvement in a single year. Among the leading journals that have recommended them, may be mentioned, the American Agriculturist, New-York Tribune, Moore's Rural New-Yorker, Independent, N. Y. Observer, Methodist, Christian Advocate, Western Rural, Prairie Farmer, Advance, Toledo Blade, and others. We can only present a few specimen extracts showing the character of the letters received.

FROM FARMERS.

"The yield is enormous. The additional value of the straw more than pays cost of seed."
C. D. LANGWORTHY, Alfred, N. Y.

"My yield from five acres is 753 bushels. I will beat the world next year."
J. L. DIVINE, Chattanooga, Tenn.

"Yield from 32 pounds seed on one acre, 113½ bushels."
J. BARKER, Spring Mills, N. Y.

"One bushel of your Norways produced as much as five bushels of the Surprise Oats."
ADAM RANKIN, Proprietor of Premium Farm, Ill.

"Yield from 15 lbs. seed, 50 bushels: weight 36 lbs."
GEORGE WILLIAMS, Minn.

"Grew six feet high. I took one bushel to our County Fair, and received first premium. Weight, 52 lbs."
A. WOGALON, Millersburg, Ohio.

"Their spreading qualities are enormous. Yield from 7 lbs. seed, 15 bushels."
G. M. BREWER, N. J.

"Yield 90 bushels per acre. This is the kind of *humbug* I like."
J. H. SCOTT, Warwick, N. Y.

"One bushel of Norways is worth two of other oats to feed out. They have substance, not all chaff."
S. M. WAITE, President Brattleboro (Vt.) Bank.

"I have bought all the improved seed down to the Norways, and it is the only one on which I have not been humbugged. Show me any oats that will beat it in yield or quality, and I will gladly pay $100 for a bushel."
W. R. HIBBARD, L. I., N. Y.

"My yield from 1¼ acres was 100 bushels. Common oats on same ground yielded 30 bushels per acre. Norways were heavier, and stood up while the others lodged badly."
V. C. SAWYER, Ohio.

"I bought 1 bushel of seed of N. P. Boyer & Co., which they advertised as Imported Norway Oats, before I saw your advertisement. I then sent for one peck of yours, and gave each an equal chance. The peck of your seed produced as much lacking 14 lbs. as the bushel of theirs; and yours did not lodge, theirs did."
I. L. DODGE, Pa.

"The Norways yield with me more than double what the Surprise do, and are excellent in quality. The Surprise oats are all hull, and a very deceptive grain. I would not pay half price for them to feed my horses."
M. V. WILSON, Kentucky.

The Norway Oats I bought of you last year have been a perfect God-send to me; I have realized enough to pay off a mortgage on my farm, which was due, and I had no means of paying, and I have seed left for 25 acres, which I shall put in this spring. One more crop will make me independent. The Norways are *King of Oats*.
OSCAR BERRY, Fond du Lac, Wis.

I estimate my clear profit per acre as follows: Increase in yield over ordinary oats, 45 bushels at 60 cts., $27; increased value of straw as feed, $25; total, $52. This is clear gain, from an investment of $10, calling the oats worth same as common oats. It pays better than wheat, or corn. As to quality, they are the best oats I ever saw, and any man who says they are not, shows that he is entirely ignorant about it. Others may try something else, I will stick to the Norways.
CHAS. VAN DEAN, Ohio.

I received 16 lbs. of your oats in the spring of 1869. Sowed on half an acre of ground. Yield, 52 bushels, weighing 40 lbs. to the bushel.
J. GALBREATH, White House, Pa.

Yield from 10¾ lbs., was 33 bushels. The Thrashers offered to thrash such oats at 1 ct. per bushel, the usual price being 3 cts.
O. B. WHEATON, Camillus, N. Y.

The seed I had from you gives great satisfaction. I also had some oats, represented to be Norways, from Boyer & Co., of Pa. They are nothing more than a good quality of common black oats.
JACOB MASON, Rosco, Minn.

I can assure farmers that the *Norway Oats* are no humbug. They yield excellently. My neighbor, who had a part of the seed sent here, has heads from his field 23½ inches long. I can add my name cheerfully to the long list of respectable farmers who endorse them.
REV. J. F. M. LLOYD, Harriettsville, O.

The bushel of oats I bought of you cost me $19.40 landed here. If it had been $100, I would be satisfied. My farm is down on the plains, good bottom land. The yield and growth were simply enormous, being over 120 bushels. They weigh 47 lbs. to the bushel. You have done a great thing for the West in the introduction of these oats, and are deserving of the grateful thanks of every farmer in the country.
C. H. HOWES, Georgetown, Col.

THE PROFITS.

There is a very general understanding among farmers as to supply and probable demand of this seed. No reasonable man, who knows the facts, doubts for a moment but that they will come into general use, just as rapidly as the seed can be had, displacing all others from our soil. If the entire product could be retained in this country, it would require two more crops to supply the seed wanted. But it is rapidly becoming known in other countries. While we have not courted foreign orders, wishing to reserve that market for another year, the few samples sent there last year have produced so well, that orders are daily reaching us from all parts of Europe. Even Norway is looking to us for the seed that bears her name, several important orders having been received from there. Nearly fifteen per cent of the last crop will be exported, and probably not less than ¼ of the next will find ready sales abroad. With these facts before us, we cannot expect a very great reduction in price of seed next year. We have shown that at price of ordinary oats, they are a profitable crop. At $1 per bushel, they will pay handsomely; but at $3 or $4, it is an easy matter for a farmer to pay off mortgages or build a new house from a few acres. Last season a 9-acre lot yielded $4,250 to a New York farmer, a larger sum than he had made in ten years farming. A Wisconsin farmer did still better; and hundreds have made small fortunes. These facts can be fully proven any day by undoubted testimony. While these high prices last, it is a speculation, but *it is safe and sure*. We hope no farmer will buy this seed unless he fully believes he is doing himself a greater favor than he is us. Many have thanked us for urging them to buy last year, and thousands will do so next year.

HOW TO GET SEED.

Our price is $7.50 per bushel; $4 per half bushel; $2.50 per peck. For the convenience of those wishing to experiment, we will send 2 lbs. by mail, post-paid, for $1.

While our seed varies in weight from 36 to 46 lbs. to the bushel, we sell by the standard of 32 lbs. to a bushel, which is enough to seed 1 acre of good ground. Send money with order, by draft, Post Office order, or registered letter. Address either of our Stores as follows:

D. W. RAMSDELL & CO.,
218 Pearl Street, New York.
171 Lake Street, Chicago, Ill.
or 612 North 5th St., St. Louis, Mo.

Large Illustrated Circulars Free.

Marblehead Mammoth Cabbage!

This is the largest cabbage in the world, sometimes weighing over sixty pounds each, and averaging as high as thirty pounds by the acre! It is not only large, but cannot be surpassed for reliability for heading, tenderness, and sweetness. As some cultivators have an impression that this cabbage cannot be fully matured outside of Marblehead, I invite their attention to the following extracts from among the many commendatory letters which I have received.

"Your Marblehead Mammoth Cabbage cannot be excelled. There were heads weighing 50 lbs., and heads of Fottler's Improved Brunswick (from your seed) weighing 40 lbs.—John H. Howlett, Charlestown, Ill."

"I raised from your seed Marblehead Mammoth Cabbages that weighed 50 lbs.—A. H. Mace, Clintonville, N. Y., Nov. 14th, 1869."

"Your Marblehead Mammoth Cabbages were very fine, they all headed well, and weighed 37 to 40, and 47 lbs.—W. Llewellyn, Red Wing, Minn., March 12, 1869."

"Your Marblehead Mammoth Cabbages are wonderful; they grew to the size of an umbrella.—Thomas Flanigan, Palermo, Kansas."

"The Marblehead Mammoth Cabbages were a perfect success. They headed well, and were three times as large as any cabbage I ever raised before.—J. F. Butt, Kosciusko, Miss."

"I have raised your Marblehead Mammoth Cabbage for two years, and it has proved the tenderest and sweetest cabbage I ever saw.—S. S. Groves, Stones Prairie, Ill."

John Van Wormer, Springs' Mills, Mich., raised some weighing 30 lbs. John Humphreys, Titusville, N. Y., 33½ lbs. M. D. Clark, Elyria, Ohio, 37 lbs. H. A. Terry, Crescent City, Iowa, 40 lbs., measuring 56 inches around the solid head. Thos. A. Lambert, Becancour, C. W., exhibited three cabbages weighing respectively 40, 42½, and 44 lbs. John W. Dean, St. Michael's, Md., has grown them weighing 33 lbs. S. M. Shuck, Preston, Minn., 33 lbs., when trimmed. E. H. Ellis, Etna Green, Ind., over 30 lbs. A. E. Garrison, Des Moines, Iowa, 30 lbs. James S. Allen, Union Springs, N. Y., 30 lbs., when stripped of loose leaves. Wm. Lee, Jr., Denver, Colorado, has grown heads weighing 45 to 50 lbs., as a penalty for which the miners of the mountains call him the "Big Cabbage Man." Leonard Cheat, Denver, Colorado, raised one which weighed 46 lbs. when trimmed of waste leaves. Collins Eaton, Ogdensburgh, N. Y., 50 lbs. P. Sweeney, Loretto, Pa., 43 lbs. Sam'l B. Ornsbee, Rolling Prairie, Wis., 53 lbs. Chas. W. Oden, Little Sioux, Iowa, produced quite a lot weighing from 50 to 60 lbs. A. C. Van Tassal, 30 lbs. trimmed. A. C. Goodwin, Kennedy, N. Y., 45 to 50 lbs. W. H. Spera, Euphrata, Pa., raised fifty heads that averaged over 31 lbs. each. Wm. D. Munson, Burlington, Vt., raised some weighing 46 lbs. Mary B. Sellman, Galesburg, Iowa, 28 to 43 lbs. stripped of loose leaves. Hundreds of others have written me that they have "taken all the prizes at the County Fairs." "Raised the largest cabbage ever seen in the country." "Astonished all their neighbors." "That in sweetness, crispness, and tenderness, they were unequalled," etc., etc. As the original introducer of the Mammoth Cabbage, I am prepared to supply seed grown from *extra large heads*, at following prices, by mail, post-paid: Per package, 25 cts.; per oz., $1; 4 ozs., $3.50; per lb., $12.

Full instructions for cultivation accompanying the seed.

Catalogues free. JAMES J. H. GREGORY,
Marblehead, Mass.

New and Rare Vegetables.

I make the seeds of new and rare vegetables a specialty, besides growing all of the standard sorts. *Catalogues free.*

JAMES J. H. GREGORY, Marblehead, Mass.

BLISS' IMPROVED
Long Orange Carrot.

This superior variety is the result of a careful selection, for successive years, of the best formed, largest, and deepest-colored roots of the Imported Long Orange Carrot, by which it has attained a perfection hitherto unknown in this useful vegetable, being larger, better flavored, and of a deeper orange color, and more sure to produce a crop. Butter makers will find this variety very useful in giving to their butter a rich, deep yellow color. We unhesitatingly pronounce it the best variety in the market, and one which will not fail to give satisfaction to the purchaser. 1 oz., 20 cts.; 4 oz., 65 cts.; 1 pound, $2, by Mail, post-paid.

Address B. K. BLISS & SON,
P. O. Box 5712, New York.

New Crop Onion Seed.

Grown expressly for us the past season by some of the most successful growers in Wethersfield, Conn., and vicinity, the quality of which cannot be excelled. Mailed post-paid to any address upon receipt of price affixed.

	oz.	¼ oz.	pound
Early Red Wethersfield	40	1.25	4.00
Large Red Wethersfield	40	1.25	4.00
Yellow Danvers	40	1.25	5.00
Yellow Dutch	40	1.25	5.00
White Portugal	50	1.50	5.00
White Globe	50	1.50	5.00

Address B. K. BLISS & SON,
Nos. 41 Park Row & 151 Nassau St., New York.

Seeds for Hedges.

Mailed to any address upon receipt of price. Osage Orange, $2 per lb.; Three Thorned Acacia, 75 cts. per pound. Prices for larger quantities will be given upon application.

Barberry, (*Berberis vulgaris,*) very hardy, producing a fine compact hedge, affording ample security against intrusion; also valuable for its fruit, which is excellent for preserving. Per oz., 40 cts.; per lb., $5.

B. K. BLISS & SON,
P. O. Box No. 5,712, New York.

European Larch Seed (*Larix Europæa*).

A supply of *Fresh Seed* just received by the subscribers, and mailed post-paid to any address at following prices: 1 oz., 25 cts.; ¼ lb., 75 cts.; 1 lb., $2.50.

Address B. K. BLISS & SON,
P. O. Box No. 5,712, New York.

GLADIOLUS.

One dozen splendid mixed varieties mailed, post-paid, to any address upon receipt of $1.50. Address

B. K. BLISS & SON,
P. O. Box No. 5712, New York.

B. K. BLISS & SON,

41 Park Row & 151 Nassau Street,

NEW YORK.

Importers, Growers, and Dealers in Garden, Field, and Flower Seeds, Horticultural Implements and Garden Requisites,

Would invite attention to the following collection of Seeds to the *Flower and Kitchen Garden*, which have been favorably known in every section of the country for the past sixteen years.

Collections of Flower Seeds by Mail.

The following collections contain the most showy varieties in our large assortment, with full directions for culture. Each packet contains a mixture of the different colors and varieties of its species, so that a greater display can be made at a much less price than when ordered in separate packets. Those unacquainted with Flowers, as well as the experienced cultivator, may order without fear of disappointment.

Coll. A—contains twenty choice varieties of Annuals...$1.00

Coll. B—contains twenty choice varieties of Biennials and Perennials..... 1.00

Coll. C—contains ten extra varieties of Annuals and Perennials, embracing many of the new and choicest in cultivation..... 1.00

Coll. D—contains five very choice varieties, selected from *Prize Flowers*, of English Pansies, German, Carnation and Picotee Pinks, Verbenas, Truffaut's French Asters, Double Hollyhocks..... 1.00

Any one remitting $3.00 will receive the four collections postage free.

The seeds contained in the above assortments are of our own selection. Purchasers who prefer to make their selection from the Catalogue will be entitled to a discount proportionate to the quantity ordered.

Collections of Kitchen Garden Seeds
BY MAIL.

A COMPLETE ASSORTMENT OF VEGETABLE SEEDS FOR ONE YEAR'S SUPPLY, FOR A LARGE OR SMALL GARDEN.

The following Collections are made up in the most liberal manner, care being taken to give a sufficient quantity of all the finest varieties and most useful sorts of Vegetables required in the Kitchen Garden.

Assortment No. 5 contains 55 varieties, $3.50
" No. 6 contains 33 varieties, 2.00
" No. 7 contains 15 varieties, 1.00

Larger Collections, which can be safely sent by express (freight paid by purchaser,) to any part of the country, as follows:

No. 1, $20.00; No. 2, $15.00; No. 3, $10.00; No. 4, $5.00.

For a list of the contents of each Collection, see Catalogue.

The *Sixteenth Annual Edition* of their **Illustrated Seed Catalogue and Guide** to the **Flower and Kitchen Garden,** is now ready for distribution.

No pains or expense have been spared in preparing this edition, to make it the most complete work of the kind ever published in this country.

It contains 120 pages of closely printed matter, and *two hundred* choice engravings of favorite Flowers and Vegetables—a large portion of which are entirely new; also, two beautifully colored lithographs of **Lilium Auratum** and a **group of Pansies, and a descriptive list of upwards** of *two thousand* species and varieties of *Flower* and *Vegetable Seeds*, including all the novelties of the past season, with directions for their culture; also, a list of upwards of *One Hundred varieties of Choice Gladiolus*—with many other Summer-Flowering Bulbs—and much useful information upon the subject of gardening generally.

A copy will be mailed to all applicants enclosing *Twenty-five cents.* Our regular customers supplied without charge.

Bliss' Gardener's Almanac mailed to all applicants upon receipt of a 3-cent stamp.

Address B. K. BLISS & SON,
P. O. Box 5,712, New York.

Cabbages worth Growing.

The following embraces the very best varieties in cultivation for a succession. Mailed to any address upon receipt of price.

	pkt.	*oz.*	*¼ lb.*	*pound.*
Early Wyman	25	$2.00	$6.00	$18.00
Early Wakefield	10	75	2.50	8.00
Early York and Large York, *each*	10	25	75	2.00
Early Winningstadt	10	40	1.25	4.00
Large Early Schweinfurt	15	1.00	3.50	10.00
Fottler's Improved Brunswick	15	75	2.50	7.00
Stone Mason Drumhead	10	40	1.25	4.00
Premium Flat Dutch	10	40	1.25	4.00
Improved American Savoy	10	40	1.25	4.00
Marblehead Mammoth	25	1.00	3.00	10.00
Red Dutch, for Pickling	10	40	1.25	4.00

One packet each of the above 12 varieties, $1.25.
One ounce " " " " 6.25.

Address B. K. BLISS & SON,
P. O. Box 5,712, New York.

SEED POTATOES.

BRESEE'S KING OF THE EARLIES, or No. 4.—Known also as the *Fifty Dollar Potato* (at which price they were sold last spring). The experience of the past season fully confirms all that was claimed for it by the raiser, and we have no hesitation in pronouncing it the *Earliest*, as well as one of the best varieties in cultivation, is ready for marketing one week in advance of the Early Rose. Mr. Bresee has placed his entire stock in our hands, for sale at the following greatly reduced prices.

Two Pounds, by mail, post-paid, for $1.00; by Express, (purchaser paying freight), One Peck, $5.00; One Bushel, $15.00; One Bbl., $40.00.

BRESEE'S PEERLESS, or No. 6.—This is, without exception, the best variety in cultivation, for a general crop. It grows to a large size, of a very showy appearance, is enormously productive, and fully equal to the Peachblow in quality. The stock was sold last spring at $600 per bushel. One lb., by mail, $1.00; by Express, $10.00 per peck.

BRESEE'S PROLIFIC, or No. 2.—4 lbs., by mail, $1.00; by Express, $1.25 per peck; $4.00 per bushel; $9 per Bbl.

CLIMAX.—4 lbs., by mail, $1.00; $1.50 per peck; $4.00 per bushel; $9.00 per Bbl.

EARLY ROSE.—4 lbs., by mail, $1.00; $1.00 per peck; $2.50 per bushel; $5.00 per Bbl.

Not less than $1.00 worth of a variety will be mailed. Older varieties will be furnished at market prices. Our illustrated *Potato Catalogue*, with full directions for their culture, will be mailed to all applicants enclosing a stamp.

B. K. BLISS & SON,
41 Park Row, & 151 Nassau St., New York.

CUCUMBER, GEN. GRANT.

A superior variety, either for forcing or for culture in the open ground. It is perfect in form, solid and crisp, and of a most agreeable flavor. Many specimens were grown the past season averaging thirty inches in length. After a five years' trial, we unhesitatingly pronounce it better than any other variety for forcing.

Packets, containing 10 seeds, 25 cents. Five Packets for $1.00. B. K. BLISS & SON,
P. O. Box 5712,
New York.

Conover's COLOSSAL ASPARAGUS
Seed and Roots.

The experience of the past season fully confirms all that was claimed for this variety when first offered last spring, and it now stands unrivaled in size, productiveness, and quality.

Specimens were exhibited the past season by Mr. Conover, which were grown alongside the best "Oyster Bay" varieties, and received the same care and treatment, which attained four times the size of that popular variety.

Though but two years from the seed, many of the plants produced from twenty to thirty sprouts, averaging from two to four inches in circumference, and were ready for cutting one year in advance of the ordinary varieties. Strong, one-year-old Roots mailed, post-paid, $2 per fifty; $3.00 per hundred.

SEEDS.—¼ oz. packet, 50 cts.
Address B. K. BLISS & SON,
41 Park Row, & 151 Nassau St., New York.

New Joint Parching Corn.

The most productive variety known, *producing from eight to ten ears on each stalk.* Equal to a yield of from one hundred to two hundred bushels per acre. Although it is, strictly speaking, a variety of parching corn, it is equally adapted to all purposes of common field corn for stock and poultry feeding, etc. It weighs, when shelled, stricken measure, sixty to sixty-two pounds per bushel. It should be planted in drills three feet apart, putting one kernel to every foot. Per packet, of about two hundred kernels, 50 cents; five packets, $2.00. For sale by

B. K. BLISS & SON,
41 Park Row, and 151 Nassau St., New York.

Lilium Auratum.
The Japanese Queen of Lilies.

A large importation from Japan, just received by the subscribers, in fine, healthy condition. Flowering Bulbs mailed to any address at following prices:

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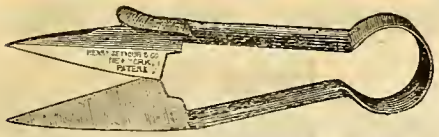

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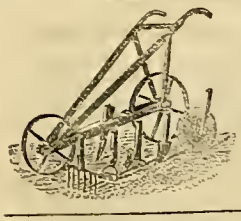

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Having in former years introduced to the public the Hubbard Squash, American Turban Squash, Marblehead Mammoth Cabbage, Mexican Sweet Corn, Brown's New Dwarf Marrowfat Pea, Boston Curled Lettuce, and other new and valuable vegetables, with the return of another season I am again prepared to supply the public with Vegetable and Flower seeds of the purest quality. My Annual Catalogue, containing a list not only of all novelties, but also of the standard vegetables of the garden (over one hundred of which are of my own growing) and this season for the first time a carefully selected list of flower seeds will be forwarded *gratis* to all. Sent without request to my customers of last season. All seed purchased of me *I warrant to be fresh and true to name, and that it shall reach the purchaser.* Should it fail in either of these respects I will fill the order over without additional charge.
JAMES J. H. GREGORY, Marblehead, Mass.

Wethersfield Large Red Onion Seed.

NEW CROP. GROWTH OF 1869.

	Per lb.	Per oz.
Wethersfield Large Red Onion, (best).....	$3.00	25c.
" 2d Early Red, very early.....	4.00	40c.
Yellow Globe Danvers (true), stock limited...	4.00	40c.
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The above varieties are grown expressly for us from selected stock, and warranted fresh and genuine.

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I warrant the following choice varieties to be *true to name.* Potatoes to be of good size, and *warranted* to reach each purchaser. No charge for barrels or boxes.

	Per 4 lbs.	Per peck.	Per bu.	Per bbl.	Ten bbls.
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Bresee's No. 5.....	1.00	1.50	5.00	.....	.....
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Early Rose.....	1.00	1.00	2.00	4 50	40.00
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CLIMAX,	"	"	5.00
PROLIFIC,	"	"	5.00
MASSASOIT,	"	"	5.00

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Warranted genuine. No charge for package or delivering on Cars or Boats in Moorestown or Philadelphia.

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" " 2d size....	.20	.40	.80	2.50	22.50
Bresee's Prolific.....	.25	1.00	3.00	7.00	50.00
" " 2d size....	.25	.75	2.00	5.00	40.00
King of the Earlies or No. 4,	.50	5.00	15.00	30.00	
Peerless or No. 6.....	.80	6.00	20.00	40.00	
Climax.....	.25	1.00	3.00	7.00	
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Four pounds, by mail, post-paid, $1; One Peck, $2.50; One Bushel, by Express, $1.50; One Bbl., $3.50; Five or more, $3 per Bbl. Also, Early Mohawk, No. 4, or King of the Earlies, Bresee's Prolific, Climax, Excelsior, and other varieties, by pound, bushel, or Barrel.

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The earliest of the earlies, of large size and free from disease, and of superior quality both as an early and late winter and spring variety.

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The Largest, Best, and most Prolific variety ever introduced, and pronounced by the leading horticulturists the greatest improvement in vegetables of the day.

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	each.	doz.
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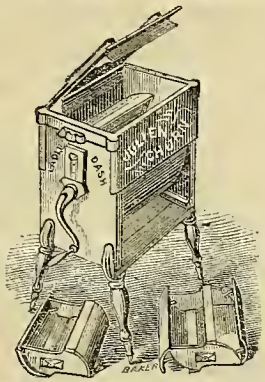

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Sulky Hay Rakes—Shares' Coulter Harrow—Betts' Hilling Plow.

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(Page 134 of our large catalogue.)

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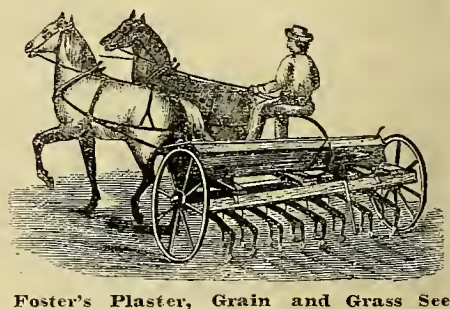

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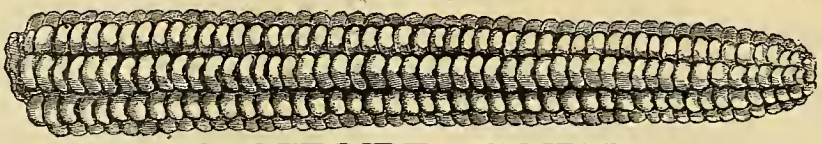

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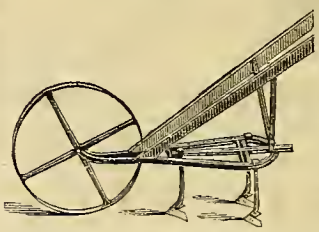

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		Interest.	Amount.
April 1, 1870, pay 6 per cent interest on $400		$24 00	$24 00
April 1, 1871, pay 6 per cent interest as before		24 00	24 00
Then one-ninth of principal, as follows:			
April 1, 1872	$44 44	$21 34	$65 78
" 1, 1873	44 45	18 67	63 12
" 1, 1874	44 44	16 00	60 44
" 1, 1875	44 45	13 33	57 78
" 1, 1876	44 44	10 67	55 11
" 1, 1877	44 45	8 00	52 45
" 1, 1878	44 44	5 33	49 77
" 1, 1879	44 45	2 66	47 11
" 1, 1880	44 44	.....	44 44
	$400 00	$144 00	$544 00

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Eggs from Prize Imported Poultry.

Dark Brahmas, $6 per doz.; Partridge Cochins, $5; Grey Dorkings, $3; Aylesbury Ducks, $5; Fine Dark Brahma Cocks, $6 each. Buy

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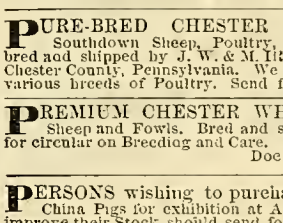

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La Fleche, imported from France	$6.00
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Very carefully packed.
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Poultry Appliances.

Incubators.—The only successful machine offered for sale in America.

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Pure Bred Poultry and Eggs.

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A few Imported Birds for sale.

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Eggs for hatching from New York Poultry Society's First Premium White Leghorns. Also very choice Houdans. Silver-spangled Hamburgs, and Rouen Ducks. For particulars, address with P. O. stamp, F. W. MILES,
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I also expect to arrive daily an Importation of 50 Fowls, "including" Partridge Cochins, Buff Cochins, Houdans, and Dark Brahmas. The above Fowls are *all* choice Birds, and nearly all 1st Premium Stock.
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Always First Premium—Never beaten.

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A few Eggs will be spared. JOS. M. WADE, Philadelphia.

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THE

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We are now receiving several Cargoes of the finest quality of

EARLIEST PICKINGS

of the

NEW CROP TEAS,

ever imported from China and Japan, (some just arrived, and others on the way). They have been selected from the growth of the best Tea Districts, and are very fresh and of the choicest flavor, and cannot fail to give entire satisfaction. We are

NOW FILLING OUR CLUB ORDERS

with the New Crop Teas.

The Company have selected the following kinds from the stock, which are recommended to meet the wants of clubs. They are sold at cargo prices, the same as the Company sell them in New York, as the list of prices will show.

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OOLONG (Black), 70c., 80c., 90c., best $1 ₱ lb.
MIXED (Green and Black), 70c., 80c., 90c., best $1 per lb.
ENGLISH BREAKFAST (Black), 80c., 90c., $1, $1.10, best $1.20 per pound.
IMPERIAL (Green), 80c., 90c., $1, $1.10, best $1.25 per pound.
YOUNG HYSON (Green), 80c., 90c., $1, $1.10, best $1.25 per pound.
UNCOLORED JAPAN, 90c., $1, $1.10, best $1.25 per pound.
GUNPOWDER, (Green), $1.25, best $1.50 per pound.

COFFEES ROASTED AND GROUND DAILY.

GROUND COFFEE, 20c., 25c., 30c., 35c., best 40c. per pound. Hotels, Saloons, Boarding-house keepers, and Families who use large quantities of Coffee, can economize in that article by using our FRENCH BREAKFAST AND DINNER COFFEE, which we sell at the low price of 30c. per pound, and warrant to give perfect satisfaction. ROASTED (Unground), 30c., 35c., best 40c. per lb. GREEN (Unroasted), 25c., 30c., 33c., best 35c. per lb.

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BRAIDWOOD, Will Co., Ill., Feb. 14th, 1869.

TO THE GREAT AMERICAN TEA COMPANY,
31 and 33 Vesey Street, New York.

Gentlemen:—Business, and a want of opportunity, have for the last eight months prevented me sending, or rather attending to our monthly club, whose orders I sent you regularly for about a year previous. Since that time many indeed have been the solicitations by many of the members, that I should once again commence and send club orders—for, as some declared, they had got *no Tea*, no matter what the price paid, since I quit sending the club orders. I have, therefore, at the urgent request of a few, resolved to send you a small order monthly, and as a beginning send you the following:

2	English Breakfast	John James	at	1.20....2.40
1½	English Breakfast	Jas. Reside	at	1.20....1.80
2	English Breakfast	John Runcie	at	1.20....2.40
2	Uncolored Japan	Wm. Ross	at	1.00....2.00
1	Imperial	Wm. Ross	at	1.25....1.25
1	Young Hyson	Wm. Ross	at	1.25....1.25
1	Oolong	Pat. McGerrity	at	1.00....1.00
2	Imperial	John Larken	at	1.25....2.50
1	Oolong	Wm. Duffie	at	1.00....1.00
4	Young Hyson	Thos. Conners	at	1.25....5.00
6	English Breakfast	Robert Barr	at	1.20....7.20
2	Uncolored Japan	John James	at	1.25....2.50
3	English Breakfast	Geo. Simpson	at	1.20....3.60
2	Imperial	Wm. Brooks	at	1.25....2.50
1	Imperial	Wm. Brooks	at	1.25....1.25
1	English Breakfast	Wm. Brooks	at	1.20....1.20

Address to John James, Braidwood, Will County, Illinois,—per Merchants' Express—to be collected on delivery; and oblige Yours respectfully, JOHN JAMES.

Parties sending club or other orders for less than $30 had better send a Post-office draft or money with their orders, to save the expense of collections by Express, but larger orders we will forward by express, "to collect on delivery."

Hereafter we will send a complimentary package to the party getting up the club. Our profits are small, but we will be as liberal as we can afford. We send no complimentary packages for clubs of less than $30.

Parties getting their Teas of us may confidently rely upon getting them pure and fresh, as they come direct from the Custom House stores to our warehouses.

We warrant all the goods we sell to give entire satisfaction. If they are not satisfactory, they can be returned at our expense within thirty days, and have the money refunded.

N. B.—Inhabitants of villages and towns where a large number reside, by *clubbing* together, can reduce the cost of their Teas and Coffees about one-third, (besides the Express charges) by sending directly to "*The Great American Tea Company.*"

BEWARE of all concerns that advertise themselves as branches of our Establishment, or copy our name either wholly or in part, as they are *bogus* or *imitations*. We do not, in any case, authorize the use of our name.

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Strawberries, Raspberries, Blackberries, Gooseberries, Currants, etc.

Our Vines and Plants are in great demand, and give general satisfaction, because they are grown on the right kind of soil with the greatest care, and so handled as to insure their well doing.

We guarantee our prices to be as low as a GENUINE article of the same QUALITY can be had anywhere.

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We offer plants this season as follows:

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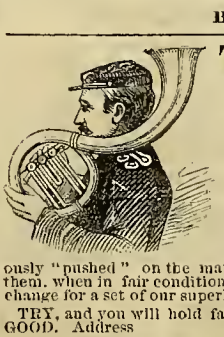
Our collection of Strawberries includes all desirable kinds, which we offer at low rates. See Price List.

J. KNOX,
Box 155, Pittsburg, Pa.



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For SALE singly or in pairs (not nearly related), pigs reared by the members of the WORCESTER COUNTY (Mass.) SWINE IMPROVEMENT ASSOCIATION. The swine reared by members of this Association took first premiums for *Boar, Breeding Sow*, and *Litters of Pigs*, at the New England Agricultural Fair, at Portland, Me., 1869, and also at Worcester County Agricultural Fairs for 1867, 1868, 1869. They likewise, had awarded to them a Siver Medal at the N. H. State Agricultural Fair, 1869. Apply to

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Makes the most wholesome and best of BREAD, BISCUIT, CAKES, &c. Unlike some other yeast, it contains no POISON to create DYSPEPSIA, and the bread may therefore be eaten hot without detriment. Resolving itself into Phosphate of Lime and soda, it prevents RICKETS, CHOLERA, and decay of TEETH, and promotes the growth of Muscle and Bone. In "*raising*" the dough it does not, like other yeast, decompose the flour, but adds nutriment to the bread, and otherwise improves it in quality and quantity. Each package contains full directions for use. Send for pamphlet, supplied gratis. Ask your Grocer for "Horsford's Bread Preparation." WILSON, LOCKWOOD, EVERETT & CO., Wholesale Agents, 301 Fulton-st., New York.

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Are the best, cheapest, simplest, most convenient, durable, and **Labor-saving Carpet Fastener** ever invented; enabling you to put down or take up your carpet **in 10 minutes.** Try them **once** and you will **use no other.** Cheaper than tacks. For sale everywhere. Dealers supplied.
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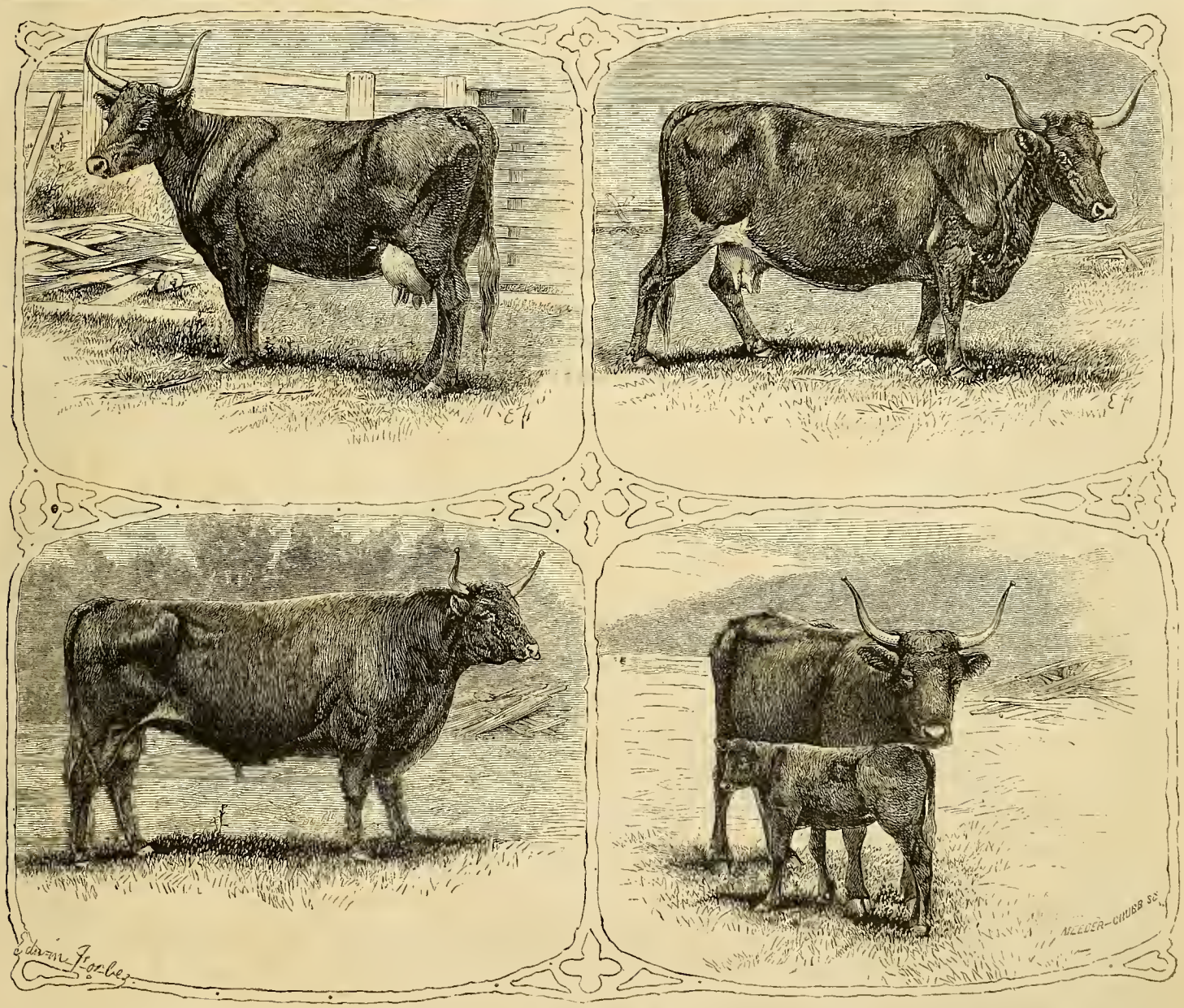

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DEVON CATTLE FROM THE HERD OF HON. E. H. HYDE.—*Drawn and Engraved for the American Agriculturist.*

The above engravings are portraits of animals owned by Hon. E. H. Hyde of Stafford, Conn., and were taken from photographs. The cows were in full milk and the bull in fair working order only. It is impossible to show in any engraving the beauty of this breed which owes so much to its rich, almost cherry-red color and white horns. It is a snug, tightly knit race, very different from any other, showing no indication of intermixture of blood in its origin—and hence by many claimed, with good reason too, to be the original breed of Great Britain. Modern breeders have perhaps introduced a dash of Shorthorn blood to give greater aptitude to fatten and earlier maturity. The Devons are medium-sized cattle, the bulls often rather low in stature; the cows of fair size giving 14 to 20 quarts of rich milk, valuable for both butter and cheese making; the working oxen, both pure Devons and grades, are among the very best in the world, for everything except very slow heavy work. They are spry, intelligent, handy and trusty, fast walkers, and we have known them fair trotters; and they make, when fattened young, the very best beef of our markets. Devons are rather slow in coming to full size and maturity, but they fatten easily, and last in full vigor as cows and oxen until 12 to 18 years old. The cows are docile and quiet, and the steers easily broken. Upon the whole, the Devon probably combines all good points and valuable qualities to a degree not approached by any other breed. These cattle are hardy at the South, and their activity adapts them to pick up a fair living where Shorthorns or Herefords would starve. It is not very unusual to find among the cows deep milkers, giving over 20 quarts of milk, and in quality of the milk takes high rank next to that of the Jerseys.

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Calendar for May.

Day of Month.	Day of Week.	*Boston, N'Engl'd, N. York State, Michigan, Wisconsin, Iowa, and Oregon.* Sun rises.	Sun sets.	Moon sets.	*N. Y. City, Ct., Philadelphia, New Jersey, Penn., Ohio, Indiana, and Illinois.* Sun rises.	Sun sets.	Moon sets.	*Washington, Maryland, Virginia, Kentucky, Missouri, and California.* Sun rises.	Sun sets.	Moon sets.
		H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.
1	S	4 56	7 0	7 53	4 59	6 56	7 50	5 2	6 52	7 46
2	M	4 54	7 1	8 51	4 58	6 57	8 47	5 1	6 53	8 43
3	T	4 53	7 2	9 49	4 56	6 58	9 45	5 0	6 54	9 40
4	W	4 52	7 3	10 44	4 55	6 59	10 39	4 59	6 55	10 36
5	T	4 51	7 4	11 37	4 54	7 0	11 32	4 58	6 56	11 27
6	F	4 49	7 5	morn	4 53	7 1	morn	4 57	6 57	morn
7	S	4 48	7 6	0 26	4 52	7 2	0 21	4 55	6 58	0 16
8	S	4 47	7 7	1 9	4 51	7 3	1 5	4 54	6 59	1 0
9	M	4 46	7 8	1 48	4 49	7 4	1 45	4 53	7 0	1 41
10	T	4 44	7 9	2 22	4 48	7 5	2 20	4 52	7 1	2 17
11	W	4 43	7 10	2 57	4 47	7 6	2 55	4 51	7 2	2 54
12	T	4 42	7 11	3 28	4 46	7 7	3 28	4 50	7 2	3 27
13	F	4 41	7 12	3 59	4 45	7 8	4 1	4 49	7 3	4 2
14	S	4 40	7 13	rises	4 44	7 9	rises	4 49	7 4	rises
15	S	4 39	7 14	7 52	4 43	7 10	7 48	4 48	7 5	7 43
16	M	4 38	7 15	9 4	4 42	7 11	8 59	4 47	7 6	8 54
17	T	4 37	7 16	10 10	4 41	7 12	10 5	4 46	7 7	10 0
18	W	4 36	7 17	11 8	4 40	7 13	11 3	4 45	7 8	10 58
19	T	4 35	7 18	11 57	4 39	7 14	11 52	4 44	7 9	11 47
20	F	4 34	7 19	morn	4 39	7 15	morn	4 43	7 10	morn
21	S	4 33	7 20	0 36	4 38	7 16	0 32	4 43	7 10	0 28
22	S	4 32	7 21	1 9	4 37	7 17	1 6	4 42	7 11	1 3
23	M	4 31	7 22	1 39	4 36	7 18	1 37	4 41	7 12	1 35
24	T	4 31	7 23	2 4	4 36	7 19	2 2	4 41	7 13	2 1
25	W	4 30	7 24	2 28	4 35	7 20	2 28	4 40	7 14	2 27
26	T	4 29	7 25	2 53	4 34	7 20	2 53	4 39	7 14	2 54
27	F	4 29	7 26	3 18	4 34	7 21	3 20	4 39	7 15	3 21
28	S	4 28	7 27	3 45	4 33	7 22	3 47	4 38	7 16	3 50
29	S	4 27	7 28	4 15	4 32	7 23	4 13	4 38	7 17	4 22
30	M	4 27	7 28	sets	4 32	7 23	sets	4 37	7 17	sets
31	T	4 26	7 29	8 41	4 31	7 24	8 36	4 37	7 18	8 30

PHASES OF THE MOON

MOON.	D.	BOSTON. H. M.	N. YORK. H. M.	WASH'N. H. M.	CHA'STON H. M.	CHICAGO. H. M.
1st Quart..	8	10 53 m.	10 41 m.	10 29 m.	10 17 m.	9 47 m.
Full.....	15	1 19 m.	1 7 m.	0 55 m.	0 43 m.	0 13 m.
3d Quart...	22	1 25 m.	1 13 m.	1 1 m.	0 49 m.	0 19 m.
New Moon	30	5 13 m.	5 1 m.	4 49 m.	4 37 m.	4 7 m.

AMERICAN AGRICULTURIST.

NEW YORK, MAY, 1870.

This month brings active work, usually over much, and as every man's most precious property is health, this should not be wantonly jeopardized. The fact is, we continually risk too much and often suffer for it most terribly—as is the experience of almost every family in the land. The laws of health in both man and animals cannot be disregarded or violated without a penalty, and it is much more agreeable to keep one's self, one's family, one's laborers, and one's stock in good health than it is to recover health if lost. Steady, regular, hard work is conducive to health, but it must be sustained by good food and shelter. It is a very important matter to most farmers to know how, and to economise the labor of animals. We are very apt to tax them severely one week and let them stand still another, and this irregularity and its accompanying exposures often cause disease. Turning unused horses and oxen to pasture is a remedy, but this is accompanied by inconviences, unless the animals are not to be used at all. Grooming is a partial cure, and takes the place to a certain degree of both exercise and food. After very hard work for some weeks, horses and oxen need rest and time to recuperate. Liberal feeding is essential, but no severe tax upon the system can be compensated for by food alone. Entire rest is equally important. This should not be continuous, however, but it should be given like the feed at regular intervals and in connection with moderate labor or exercise. Mere fat gained in the stall is of little use before the plow, and it brings a certain delicacy or tendency to disease.

Plan for a crop of corn for cutting and feeding green to milch cows and hogs; for roots, mangels, carrots and parsnips for feed—the last two to be put in this month; for some crops to be sold for cash if you are situated so that this is possible. Some crop may almost always be raised which is nearly as good as money. This in some sections is tobacco, in others fruit, in others broom-corn, in others flaxseed, in others cotton, in others castor-oil beans, etc., etc. As a rule we think some such crop is as advisable as it is usually profitable, if grown understandingly and not in a way, or so largely, as to impoverish the farm. Many food crops may be raised on the same principle, *i. e.* not for feeding out on the place, but for immediate sale.

Hints About Work.

Corn Planting.—Our great cereal demands the farmer's care early and late this month. Manure is to be hauled upon the sward and plowed in, for corn is the best breaking up crop for most farmers. With a heavy dressing of manure, plow pretty deep, especially if it be desirable to deepen the soil. With deep plowing on heavy land it is best to manure in the hill, either with good compost, or with some commercial fertilizer. Corn can hardly be manured too much, as it draws very heavily on the land. When the object in breaking up a sward is to get the land in grass again, corn should not be put on. Potatoes will abstract much less of value to the grain and grass which will follow. Select a variety sure to ripen, getting seed from the North if you do not use that of your own selection. Mark out with care, after giving the ground a thorough, light harrowing to kill weeds, in case the ground has lain more than a day or two after plowing and harrowing, and plant immediately. Corn ground may be plowed, marked and planted the same day. It is not best to plant too early. Seed soaked in warm water and having a little pine tar stirred into the water, will be coated with the tar. If rolled in plaster it is not bad to handle and is much less subject to the attacks of grubs, blackbirds, crows or squirrels.

Broom-Corn.—Put on warm, dry, clean land, rich and in good tilth. If this is very free from weeds plant early; either in hills 3 feet apart, accurately marked each way or in drills 3 to 4 feet apart. Ashes and plaster is a good application in the hill or drill. Test the seed, as, unless it has been carefully gathered and preserved, it will not grow. The seed may be long in coming up, and is always long in getting established and rapidly growing. On weedy land it should be planted late in the month.

Tobacco.—Water the seed-beds with liquid manure, weed carefully, thin if necessary. Work over and haul out manure upon the field; plow as soon as the manure is spread, and harrow as often as weeds start, before time to set out the plants (next month).

Potatoes.—We have little to add to the hints given in April. Garnet Chili and Gleason are prolific sorts for general culture. The White Peachblow is both very good and moderately productive. The Climax, Early Mohawk, and Early Rose are early, prolific and good; Bresee's Prolific late and very prolific. These are among the promising new sorts.

Peas and *Oats* for fodder.—Plow in the peas lightly, and harrow in the oats. The crop may be cut and fed green before corn—if let stand until ripe, it may be thrashed and the seeds separated.

Oats ought to be sowed early if at all—if delayed in sowing, put the land in potatoes, roots, buckwheat or corn sowed in drills for fodder.

Grain Fields and *Grass* may be sometimes weeded to advantage very early in the month. Clover and grass seed sown upon them, and they may be top-dressed with plaster, ashes, superphosphate, etc.

Working Stock.—The farmer's great dependence this month upon his working oxen and horses should lead to their having extra care, shelter, good feed, and grooming. As the heat of the season increases, it is important to give longer resting time at noon, especially to oxen. Bathe yoke and harness galls, or better, wash tender spots, and if possible ease the pressure upon them by pads or otherwise to prevent galling. Oats with barley, or corn-meal, or with barley-meal and Indian meal mixed and fed upon cut hay, is good feed to work upon, and a great deal more labor will be done by well-fed animals, than with others. Everybody knows what a difference it makes with horses, and this is quite as marked with oxen, which are seldom too fat.

Milch Cows.—The greatest care should be exercised, that the milk does not fall off before cows are turned to grass; the employment of corn-meal, wheat or rye bran, cotton-seed oil-meal (if the seed was well hulled), and linseed oil-meal, is to be advised, if the supply of roots has not held out. Bran may be fed very freely; corn meal moderately 2 to 6 quarts a day; oil-meal 3 pints to 2 quarts a day.

Root Crops.—Sugar Beets, Mangel-wurzel Beets, Parsnips, and Carrots should be sown as soon as

the ground is prepared and is warm and mellow. The two former should be sowed on deep rich soil not less than 2 feet apart in field culture and 30 inches to 3 feet is often better, as the same amount of labor will be better rewarded than if the rows were nearer, though perhaps the crop of a given piece of ground might not be so large. We would never sow parsnips with less than 20 inches between the rows, nor field carrots less than 16. Have the ground very mellow, well marked out and sow with a hand-drill, as in garden culture, unless the crop is on a more extensive scale than is common.

Cows.—Before the pastures are ready, cows are very apt to fall off in milk. Rye or wheat sown for feed will be fit to cut this month, and may be mowed as soon as it will give a swath; a small quantity daily will be of great benefit, coloring the butter, and increasing the flow of milk. The stools will start again if not too far advanced when cut.

Calves reared by hand must be watched, lest they become either constipated or loose in the bowels. Skimmed milk may be thickened with scalded Indian meal and rye flour, linseed oilcake, or wheat middlings. The quantity of the mixed meal must be small at first, and may be increased until the calves are turned to grass. A gill of linseed meal with half a pint of fine corn-meal or a little more of middlings a day is enough for a good-sized calf.

Sheep and *lambs.*—We are advocates of early shearing without washing. This necessitates giving the sheep shelter from cold storms—and this should always be done. Wool which starts when there is real necessity for covering, is stronger than that beginiug its growth in hot weather and often when a diseased condition of the skin is caused by sunscalding. Besides, early shorn sheep are well protected when hot weather comes, and if not washed are not almost prostrated by colds which come after this great exposure. A little extra grain or oil-meal tells advantageously after shearing.

Poultry.—Protect young of all kinds both from sun and rain—Turkeys especially need shelter. A simple roof 4 feet wide on the south side of a fence, raised just so high above the ground, that there shall be a shadow of a foot in width at noon, makes a nice warm place for hens and chickens. Provide dusting boxes which shall contain road dust, ashes and sulphur. The dust-bath affords hens and turkeys their only means of *washing* themselves.

Pumpkins.—If the corn is to be only a moderate crop — that is if the land is not heavily manured, and a good sward has not been turned under besides, pumpkins may do very well and will pay. If a very heavy crop of corn is expected, they are likely to be so shaded as not to do well. They do best when placed by themselves on very well manured land. Plant in hills 6 or 8 feet apart. The Cheese Pumpkin is marketable and good, the common yellow best for cattle and hogs.

Roads.—The earlier the roads can be worked after settled weather the better. Where practicable the carriage way should be made and kept hard and smooth by top-dressings of sharp gravel packed hard. Any clay coming to the surface between ruts should be thrown off, and gravel or broken stones should be used to fill holes and soft places. When this cannot be done, employ any means at hand to secure a hard roadway. Frequent scraping and rolling with a heavy roller, obliterating the old wheel tracks will in time make a good road of pretty soft materials, provided it has sunshine.

Work in the Horticultural Departments.

There is so much to be done this month that the horticulturist finds but little time for reading, and our notes must be brief; April and May lap over upon one another so much, so far as work is concerned, that last month's may be referred to with advantage.

Orchard and Nursery.

Planting is to be pushed forward as fast as consistent with good work. Trees may be kept back by heeling them in and shading them.

Grafting.—The more advanced the stock, the greater risk there is of injury to the bark. Several have asked for a recipe for

Grafting Wax.—Take four parts of rosin and one part each of beeswax and tallow and melt together. If too hard, add more tallow, and if too soft, more rosin. Lard may be substituted for the tallow or raw linseed oil, a pint being used in the place of a pound of tallow. The wax is poured into water when melted, and gathered in the hands and worked like candy, after which it is made into convenient rolls. A handy way to use it is to tear up old cotton, old sheets or dresses, into strips about 2 inches wide. Roll them up and put them into the melted wax, and let them remain until thoroughly saturated. Remove, and let them drain. This can be unrolled and torn into convenient bits as wanted.

Young Orchards may have root crops between the rows. When these crops are hoed, cut up the weeds and mellow the surface around the trees. Corn shades the trees too much late in the season, and prevents thorough ripening of the wood.

Mulch.—Covering the surface around the trees with bog hay, coarse manure, or other available litter, will help the trees greatly to resist the drought.

Nursery Trees.—Budded stocks need to have all buds removed, except the inserted one. Rub them off as soon as they start.

Seed-beds.—Success in raising evergreen and most other forest-trees from seed, depends upon shading, proper moisture, and a free circulation of air. A lattice of lath makes a convenient shade.

Insects.—The annual fight must be kept up. Wherever a tent-caterpillar's nest is to be seen, there is a challenge to combat. The insect will get the best of it if it is allowed time. Make it somebody's business to destroy every nest, and let that somebody be yourself, if you wish it done faithfully. Jarring the trees and catching the insects upon a sheet or other convenient receptacle, is the only certain mode of warfare with the curculio yet known. Begin early in the season, and early in the morning. All washes and "invigorators" plague the inventor more than they do the curculio.

Fruit Garden.

Strawberries.—It does not seem to be generally understood that strawberry plants must have a season's growth before they will bear. Plants are best set in the spring, the earlier the better, unless one strikes layers in pots, in which case they may be set at any time. Where the beds have been covered with straw, this is parted over the plants and left on until after fruiting. What weeds make their way through the straw may be pulled. Beds that have not been mulched should be thoroughly hoed over and a mulch put on before the fruit attains much size. Liquid manure and wash from the house will increase the size of the fruit.

Grape-vines.—Upon young vines set this spring but one bud should be allowed to grow. Rub out all but the most vigorous one. Two buds may be allowed to grow upon vines planted last year. Established vines will push buds where they are not wanted; rub off these, and save pruning. When the young shoots are large enough to show the little clusters, which are only buds, and not, as many suppose, grapes, the end of the shoot is pinched off. Some pinch at the leaf above the last or uppermost bunch, and others leave two or even three leaves. This, when done thus early, avoids the check which is given to the vine by the old method of summer pruning after the fruit is set. Layers may be made as directed last month.

Currants.—No fruit is more neglected than this, and none will respond more readily to good treatment. A good dressing of manure and mulching before hot weather comes on, will increase the size and quality of the fruit. The Currant worms, so destructive to the foliage in some localities, are best treated by dusting the leaves with powdered white hellebore.

Insects.—Rose-bugs often destroy the blossoms of the grape-vine. We know of no effective remedy save shaking them from the vine, and catching and killing them. Hand-picking, thoroughly persisted in, will do much to keep in check other insects that prey upon the vine.

Blackberries and *Raspberries* are to be tied to stakes or other supports. A strong wire stretched between posts answers well in garden culture.

Marketing.—Those who send fruit to market should decide in season upon the kind of baskets, crates, or other packages they will need, and procure them in advance. Have them distinctly marked. Berries sent from Southern to Northern markets should not be too ripe when picked.

Kitchen Garden.

A list of the leading varieties as well as some of the promising novelties, was given in last month's notes. In most places the hardy vegetables for the first crop were sown last month.

Succession Crops of these should be put in at intervals if it is desired to prolong the season of peas, salad plants, radishes, etc.

Asparagus is to be cut with a sharp knife, and when marketed it is to be made up into bunches 9 inches long and 4 or 5 inches in diameter. An engraving of a bunching frame was given last May. Beds only two years set should be cut sparingly.

Beans.—Plant bush sorts, and when the soil is well warmed, Limas. If a cold rain comes on, the Limas are apt to rot in the ground. If Limas have been started under glass, put them out when the weather becomes settled.

Beets and *Carrots.*—Run a weeding hoe of some kind between the rows as soon as they can be distinguished. As soon as large enough, weed and thin. A few days' neglect will often be of great injury to carrots.

Cabbages and *Cauliflowers.*—Frequent hoeing is very beneficial to these. If cut-worms attack the plants they must be dug out. Sow seeds for later crops in open ground in a well-prepared seed-bed.

Celery.—Sow seeds in a well prepared seed-bed. They are slow in germinating.

Corn.—Plant as soon as the season will allow. See list of varieties on page 179.

Cucumbers.—If there are cold-frames or hot-beds from which other plants have been removed, they may be profitably devoted to cucumbers. Plants which have been started in-doors or under glass, may be put out when cold nights are over; they will need sheltering for a while at night; two boards nailed together roof-shape will answer. Sow seed in the open ground as soon as it is warm enough. Use plenty of seed to allow for losses. See vine-shield figured last month.

Egg-Plants.—Nothing is gained by putting these out before the weather has become warm and settled. Give them a rich warm spot.

Herbs.—These may be sown in a seed-bed and transplanted, or sown where they are to grow and thinned. In market gardens they are transplanted to the ground from which early cabbages, etc., have been taken. Sage, Thyme, Sweet-Marjoram, and Summer Savory, are the kinds generally grown.

Lettuce.—Transplant as soon as large enough, and sow seed for succession. See article on page 181.

Martynia.—The tender pods are much esteemed for pickles. Sow where they are to grow, or transplant to 3 feet apart each way.

Melons.—Treat the same as directed for cucumbers.

Onions.—Seed in cold localities may yet be sown. When the plants are up sufficiently to allow the rows to be distinguished, run a weeder or hoe through them. Weed as soon as the rows show that it is needed. A moderate dressing of salt is beneficial. Onions from sets and potato-onions are to be kept well cultivated.

Parsley.—Sow in soil as free from weeds as possible, as it is long in starting.

Parsnips.—Hoe and weed as soon as large enough, and thin to about 10 inches.

Potatoes.—Keep the weeds under. A little ashes and plaster at hoeing will help them.

Peas.—Put brush to tall growing sorts after hoe-

ing. If allowed to get tall enough to fall over, they do not climb readily. Sow for a late crop.

Peppers.—Treat the same as Egg-Plant.

Rhubarb.—Plants set this spring should not be gathered from. *Pull*—not cut—the leaves from old plants. They come off readily with a sidewise pull.

Spinach.—Weed and hoe the early planted, and sow for later. For summer spinach, sow the New Zealand when the soil is warm, and the Spinach Beet, early. Both are excellent.

Sweet Potatoes.—The directions for field culture on page 175, will in the main answer for the garden. We prefer to grow them on well manured ridges. Set the plants well down to the first leaf, and should they be injured by frost, they will start anew. If the ridges have not been freshly made, use water in the holes at planting.

Squashes.—Bush kinds started under glass may be set out. Sow in the open ground when warm enough. Make hills for bush sorts 4 feet each way. For Boston Marrow, 8 feet, and for Hubbard, 10 feet. Make the hills rich, and for the running sorts the rest of the soil rich also, as they root at the joints of the vine.

Tomatoes.—Put out when danger of frost is over. In field culture the vines are allowed to fall down. In the garden use a trellis. One is figured on page 182, and others were figured last year.

Winter Cherry, also called Strawberry Tomato, Allekengi, and Ground Cherry, is a relative of the Tomato, with a fruit the size of a small cherry and enveloped in a loose husk. It makes excellent sweetmeats, and the fruit is esteemed by many to eat raw. Sow early, and transplant the same as tomatoes. The vine is low, and does not need a trellis.

Flower-Garden and Lawn.

Lawns.—To have a fine close turf, it is essential that the ground should be rich, the seed thickly sown, and the grass be mown frequently. Weeds for the most part flourish best in a soil too poor for the grass to make a sufficiently strong growth to crowd them out. Frequent mowing not only keeps the turf thick, but it destroys the annual weeds. Good hand mowers may now be had for $25 and $30. It is best to mow often and leave the cut grass to act as a fertilizer. Bone-dust and ashes are excellent as a top-dressing.

Margins around beds or along walks are to be kept neat by the use of an edging knife, which is much like a meat chopping-knife with a long handle. The outline of beds can be preserved by driving down wooden pins an inch square, their heads being below the level of the turf.

Bedding or *Massing.*—Sufficient was said upon the use of bedding plants in articles in February, and March on pages 64 and 102. We repeat our caution not to put out tender things, such as Colens, Heliotropes, etc., until cold storms are over.

Annuals in Ribbon Gardening.—Those who cannot afford the necessary bedding plants, may produce pleasing effects with annuals. These are best sown in a seed-bed and transplanted to the show-bed, taking care to have in reserve, plants to replace any which should not come true to color. No annual is more useful for this purpose than Drummond's Phlox, which can be had from pure white to deep purple. Where different species are used, the hights and times of flowering must be considered. These are given in the Seed Catalogues.

Bulbs.—The principal bulbs to be planted in spring are Lilies, Mexican Tiger-flower, Gladiolus, Jacobean Lilies, Amaryllis, and Tuberoses. All but the Tuberoses may be put out in the border; they should be started in pots in a warm room or under glass.

Roses.—Potted plants of the summer blooming kinds may now be had, and may be turned out without checking their growth. Use tobacco water for plant lice. Where there are but few plants, hand-picking and shaking the plants will be found the best way to treat the rose-slug and rose-bug.

Dahlias.—Put the roots in a warm place to start. A box of earth in a warm room or a vacant hot-bed will do. In lack of these, slightly cover them with earth in a warm corner of the garden, and throw a rug or other cover over them every night.

Evergreens are best moved this month. Success depends upon keeping the roots from drying.

Green-house and Window Plants.

Window plants usually go out of doors altogether, but it is less the custom than formerly to turn everything out of the green-house. It is but little more trouble to properly care for the plants in the house than out of doors, and the liability to injury is much less. By proper shading of the glass and ventilation, plants can be kept in good condition.

Shelter.—Plants out of doors should be sheltered from the winds and in part from the sun. Camellias especially need shade.

Plunging—setting the pot up to the rim in soil—is done to avoid the necessity of frequent watering and for ornamenting the border. Put coal ashes in the bottom of the hole in which the plant is set, to prevent worms from gaining access to the pot.

Fuchsias bloom much better in partial shade than in the sun. In this country they do poorly as bedding plants. Well-grown specimens make a fine show upon a veranda where they have some shade.

New York Live-Stock Markets.—

WEEK ENDING.	*Beeves.*	*Cows.*	*Calves.*	*Sheep.*	*Swine.*	*Tot'l.*
March 21st	4,903	175	1,046	13,704	9,626	29,354
do. 28th	6,111	133	1,264	20,134	13,219	41,461
April 4th	4,953	124	1,640	13,321	9,641	29,679
do. 11th	5,748	100	1,885	15,862	10,193	33,788
Total in 4 Weeks	22,325	532	5,835	63,021	42,579	134,282
do. *for prev. 4 Weeks*	24,275	519	8,162	100,807	55,141	183,904

	Beeves.	*Cows.*	*Calves.*	*Sheep.*	*Swine.*
Average per Week	5,581	133	1,459	15,755	10,645
do. do. *last Month*	6,069	130	790	25,202	13,785
do. do. *prev's Month*	6,466	102	532	28,128	14,015
Average per Week, 1869.	6,275	92	1,752	28,836	15,348
do. do. do. 1868.	5,733	105	1,588	27,182	18,809
do. do. do. 1867.	5,544	64	1,320	22,154	20,605
do. do. do. 1866.	5,748	94	1,200	20,000	13,000
do. do. do. 1865.	5,255	118	1,500	16,091	11,023
Total in 1869	326,280	4,827	91,083	1,499,500	798,190
Total in 1868	298,128	5,466	82,571	1,413,479	978,034
Total in 1867	293,832	3,369	69,911	1,174,154	1,102,643
Total in 1866	298,880	4,885	62,420	1,040,000	672,060
Total in 1865	270,271	6,161	77,991	836,733	573,190
Total in 1864	267,699	7,603	75,621	782,462	650,277

Beef Cattle.—There has been quite a variation in the weekly supply of beef, and the total for the month is nearly 2,000 less than for the previous four weeks. This, however, does not affect the prices paid for the same grades. The highest figures seldom reached more than 17½c. for very best tops. A few sold early in April for 18c. per lb., to dress 60 lbs. to the cwt, but these were very fat and large, and would overrun their estimated weight enough to bring the price down to 17½c. per lb. The range of prices has not been so great as for the few months past, and the quality of the beef averaged a little better. As the weather grows warmer, butchers look for what they call "plump" cattle, not large and fat, but such as will cut up well for retail trade; such, if fat, will sell quickly for 17c. to 17½c. per lb., live weight. Below we give the list of prices, average price, and figures at which the largest lots were sold.

M'ch 21, ranged	12 @17c.	Av. 15¼c.	Large sales	14	@16
do. 28th, do.	12 @17c.	do. 15¼c.	do.	do.	14	@16
April 4th, do.	13 @17c.	do. 15½c.	do.	do.	15	@16½
do. 11th, do.	13 @17½c.	do. 15½c.	do.	do.	15	@16½

There is a slight advance in prices, as will be seen by the list.....**Milch Cows.**—Calls for good milkers are still plenty, and a really good cow soon finds a buyer. Prices have not changed much from last month. The majority of the common cows sell for from $60@$75, still poorer quality for less. First-rate milkers, if fresh with their calf, sell for $80@$90, and if very extra, $100 will be paid.....**Calves** have increased somewhat in numbers and more come in alive. Trade is quite steady and prices good. We quote ordinary to medium calves at 8@10c.; fair to good at 10@11c., and of very extra, 11½c. per lb., live weight....**Sheep.**—Receipts have been very plenty and quite equal to demand. We do not notice a decline in price, but a tendency to hold off on the part of buyers. Many flocks are kept from day to day seeking buyers, but butchers stand firm, feeling confident that prices must come down a little. A large proportion of sheep came in minus their wool, and they sell a little better sheared than with the wool on. Pelts with the wool on are quoted at from $1.75@$2.00 each, and clipped pelts sell for 22@23 cents each. Prices range for good sheep, from 7¼@8c.; Extras, 8½@8¾c. Majority of sales are from 6@7½c. per lb.....**Swine.**—There has been quite a falling off in the supply, with but little change in prices. Most of the hogs are sold dressed, and we quote only prices of dressed pork. Very heavy and fat hogs sell at 12c., lighter ones, if good, at 12¼@12½c. Prices have been pretty constant during the four weeks ending April 11th, and we notice but little change in this department.

Commercial Matters—Market Prices.

The following condensed, comprehensive tables, carefully prepared specially for the *American Agriculturist*, show at a glance the transactions for the month ending April 14, 1870, and for the corresponding month last year.

1. TRANSACTIONS AT THE NEW YORK MARKETS.

RECEIPTS.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
27 days *this* m'th.	224,500	478,000	153,000	2,650	313,000	217,000
22 days *last* m'th.	193,500	228,500	118,000	1,000	87,000	189,000
SALES.						
27 days *this* m'th.	216,000	1,485,000	897,000	18,500	321,000	659,000
22 days *last* m'th.	199,000	1,251,000	896,000	21,000	288,000	734,000

2. *Comparison with same period at this time last year.*

RECEIPTS.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
27 days 1870	224,500	478,000	153,000	2,650	313,000	217,000
26 days 1869	146,000	779,000	497,000	3,800	36,500	101,000
SALES.						
27 days 1870	216,000	1,485,000	897,000	18,500	321,000	659,000
26 days 1869	201,000	1,157,000	1,203,000	74,000	144,000	994,500

3. *Exports from New York, Jan. 1 to April 14:*

	Flour.	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
1870	391,329	2,336,354	87,503	6,709	——	5,818
1869	252,219	2,114,724	788,278	——	——	34,934
1868	205,245	815,889	2,303,946	148,822	——	24,407

4. *Stock of grain in store at New York:*

1870.	*Wheat*, bush.	*Corn*, bush.	*Rye*, bush.	*Barley*, bush.	*Oats*, bush.	*Malt*, bush.
April 11	1,845,186	287,916	23,249	187,172	756,811	99,983
March 7	2,509,698	481,176	39,089	278,105	1,105,194	97,139
Feb. 11	2,902,638	534,063	62,112	322,425	1,199,672	86,214
Jan. 12	4,423,028	591,903	88,289	34,900	1,310,985	85,105
1869						
Dec. 11	3,810,562	893,909	50,043	285,006	1,386,594	77,097
Nov. 10	1,616,030	693,685	31,700	31,584	281,581	66,782
Oct. 11	968,272	445,068	34,467	5,948	120,950	67,094
Sept. 6	745,121	127,736	56,081	——	183,920	134,870
Aug. 9	634,262	253,155	75,797	361	50,219	105,458
July 10	531,657	328,613	71,418	2,966	259,985	97,177
June 7	637,877	385,241	107,546	383	555,993	109,746
May 11	1,056,048	394,156	107,502	17,684	613,166	77,677
Apr. 10	1,684,633	1,080,769	165,008	48,281	1,178,710	66,664
March 12	1,990,416	1,301,167	211,880	81,616	2,000,457	50,695

Gold has fluctuated less violently. It has been again up to 114⅛, but it closes at 112⅝.....Breadstuffs have been fairly active. The export demand has been on an enlarged scale, chiefly for low grades of Flour and Spring and Amber Winter Wheat, at, however, easier prices and more liberal offerings. The home trade inquiry has been moderate. Corn, Rye, and Oats, have been scarce, and quoted higher. Barley has been plenty and depressed.....Provisions have been in more request, prices closing in favor of sellers.....Cotton has been more sought after, and with a reduced supply available, prices have advanced, but close less firmly .....There has been a moderate movement in Wool, at slightly reduced rates. Holders have shown more eagerness to realize. The demand has been mainly for manufacturing purposes.....Hay has been quiet and quoted cheaper towards the close.....Hops and Tobacco have been moderately dealt in, closing steadily at our quotations.... Grass Seeds have been in light supply and good demand at much firmer prices than quoted last month.

CURRENT WHOLESALE PRICES.

	March 14.	April 14.
PRICE OF GOLD	112¾	112⅝
FLOUR—Super to Extra State	$4 45 @ 5 75	4 20 @ 5 45
Super to Extra Southern	5 85 @ 9 75	5 25 @ 9 75
Extra Western	4 65 @ 9 25	4 55 @ 9 25
Extra Genesee	5 75 @ 7 25	5 75 @ 7 25
Superfine Western	4 45 @ 4 75	4 30 @ 4 50
RYE FLOUR	4 30 @ 5 50	3 90 @ 5 00
CORN-MEAL	4 25 @ 4 90	4 30 @ 5 25
WHEAT— All kinds of White	1 35 @ 1 65	1 27½@ 60
All kinds of Red and Amber	95 @ 1 33	95 @ 1 25
CORN— Yellow	97 @ 1 12	1 08 @ 1 15
Mixed	80 @ 1 05	90 @ 1 10
OATS— Western	52 @ 61	57 @ 68
State	60 @ 63½	64 @ 68
RYE	90 @ 1 05	95 @ 1 10
BARLEY	80 @ 1 12½	70 @ 1 10
HAY—Bale ₱ 100 lb	90 @ 1 25	80 @ 1 15
STRAW, ₱ 100 lb	70 @ 1 10	65 @ 1 00
COTTON— Middlings, ₱ lb	21½@ 22¼	23⅜@ 24¼
HOPS—Crop of 1869, ₱ lb	10 @ 25	10 @ 25
FEATHERS —Live Geese, ₱ lb	75 @ 85	80 @ 85
SEED—Clo ver, ₱ lb	12½@ 13	14¼@ 14¾
Timothy, ₱ bushel	4 00 @ 4 50	6 25 @ 6 75
Flax, ₱ bushel	2 20 @ 2 25	2 10 @ 2 20
SUGAR—Brown, ₱ lb	8¾@ 11¾	8 @ 11¼
MOLASSES, Cuba, ₱ gal	26 @ 45	20 @ 45
COFFEE— Rio (Gold, in bond)	9¼@ 13	9¾@ 13½
TOBACCO, Kentucky, &c., ₱ lb	7¾@ 14	7 @ 13½
Seed Leaf, ₱ lb	10 @ 65	8 @ 65
WOOL—Domestic Fleece, ₱ lb	44 @ 70	42 @ 66
Domestic, pulled, ₱ lb	25 @ 47	22 @ 46
California, unwashed	17 @ 33	15 @ 32
TALLOW, ₱ lb	9 @ 9½	9½@ 9⅝
OIL-CAKE —₱ ton	40 00 @44 00	35 00 @39 00
PORK—Mess, ₱ barrel	26 25 @26 50	27 75 @28 00
Prime, ₱ barrel	20 50 @21 00	20 50 @21 50
BEEF—Plain mess	8 00 @14 00	8 00 @14 00
LARD, in tres. & barrels, ₱ lb	13¾@ 15½	14¼@ 16½
BUTTER —Western, ₱ lb	18 @ 32	15 @ 28
State, ₱ lb	25 @ 42	18 @ 38
CHEESE	6 @ 16½	6 @ 16½
BEANS—₱ bushel	1 20 @ 2 10	1 20 @ 2 40
PEAS—Canada, in bond, ₱ bu	95 @ 1 00	1 10 @ 1 25
EGGS—Fresh, ₱ dozen	26 @ 27½	27 @ 29
POULTRY —Fowls & Chickens	18 @ 22	21 @ 24
Turkeys, ₱ lb	20 @ 25	26 @ 29
Geese, ₱ lb	16 @ 18	16 @ 18
POTATOES, ₱ bbl	1 25 @ 2 25	1 25 @ 2 00
New Bermudas, ₱ bbl	— @ —	8 50 @10 00
APPLES—₱ barrel	3 00 @ 5 00	3 00 @ 5 25
SWEET POTATOES, ₱ bbl	@ —	— @ —
TURNIPS—₱ bbl	1 25 @ 1 50	1 50 @ 2 00
CABBAGES—₱ 100	6 00 @ 8 00	6 00 @10 00
ONIONS—₱ bbl	4 00 @ 5 00	4 50 @ 5 50
CRANBERRIES—₱ bbl	— @ —	16 00 @22 00
BROOM-CORN—₱ lb	15 @ 17	11 @ 15

[In the following table is given the price of each article, and the number of subscribers required to get it free, at $1.50 a year, *or* at the lowest club rate of $1 a year. For full descriptions of the articles send for our *Special Sheet.*]

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9	*Alderney Bull*	$400 00	365	1050
10	*Devon Bull*	$100 00	120	350
11	*Devon Bull*	$150 00	165	500
12	*Devon Bull*	$200 00	210	650
13	*Cotswold Ram*	$100 00	120	350
14	*Cotswold Ram*	$200 00	210	650
15	*Cotswold Ewe*	$100 00	120	350
16	*Cotswold Ewe*	$150 00	165	500
17	*Southdown Ram*	$100 00	120	350
18	*Southdown Ram*	$150 00	165	500
19	*Southdown Ewe*	$75 00	100	285
20	*Southdown Ewe*	$100 00	120	350
21	*Chester White Pig*	$30 00	46	150
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24	*Houdan Fowls, one Pair*	$40 00	50	150
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30	*Norway Oats, (1 peck, Ramsdell & Co.)*	$2 75	7	27
31	*Garden Seeds for a Family (10 kinds)*	$5 00	13	37
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33	*Garden Seeds & Flower Bulbs (Selection)*	$2 00	5	22
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2 TWO MONTHS 2

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The two months of May and June, this year, are important ones, in several respects. The wintry weather in March, and part of April, has crowded Farm, and Garden, and House work into narrower limits. The labor of three days must often be done in two; but if plans are all well laid, implements and seeds all ready, and the physical strength of both human and animal workers be in good condition, much will be accomplished, and the autumn results will be cheering.

ANOTHER THING, that will **PAY WELL,** can be done during these two months. Our Premium list (previous column) will be open to all until June 30th. So there are two good months, or **52** week days and evenings, in which our friends may fill up their lists already begun, and start and fill up *new* lists, and in return receive most valuable articles, *free of cost.* Many of our largest premiums have, in past years, been secured by persons who did not begin to get subscribers until after May 1st. For example, a lady began May 16, and secured a $650 Steinway Piano before June 30, and took care of her child in the meantime. A farmer, not having the cash to buy a mower, stirred around in May and the forepart of June, and without neglecting his farm work, secured a premium Buckeye Mower in time for haying. He got the subscribers on evenings and rainy days—many of them among evening loungers at the stores.

About one subscriber a day (or evening) during May and June, will secure you premium 21, *or* 24, *or* 25, *or* 36, *or* 38, *or* 43, *or* 53, *or* **64,** *or* 67, *or* 69, *or* 80, *or* 99, *or* 105, etc.,—about a dollar a day! Look at these in the Table.

About one subscriber in two days (or evenings) will secure you premium 26, *or* 27, *or* 28, *or* 34, *or* 40, *or* 46, *or* 51, *or* 66, *or* 77, *or* 79, *or* 83, *or* 98, *or* 101, etc. Look at these in the Table.

About one subscriber in three days (or evenings) will secure you premium 44, *or* 45, *or* 47-8-9, *or* 70, *or* 76, *or* 81, *or* 85, *or* 92, *or* 100, etc. Look at these in the Table.

About one subscriber in four days (or evenings) will secure you premium 31, *or* 32, *or* 54, *or* 72, *or* 73, *or* 82, *or* 90, etc. Look at these in the Table.

All subscribers obtained, give you about $1 each; for the premiums are all valuable, and fully *worth* their price.

Every reader will find it useful to others as well as to himself, or herself, to keep this journal before the people, —every now and then getting some one to subscribe, who will himself be benefited, and a good premium will reward the canvasser. TRY IT, and see what can be done during the next

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2 TWO MONTHS 2

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☞ **See Special Notes in next Column.**

SPECIAL NOTES.

Read and carefully Note the following Items: (*a*) All subscribers sent by one person count, though coming from a dozen different Post-offices. But....(*b*) State with each name or list of names sent, that it is for a premium....(*c*) *Send the names as fast as obtained, that the subscribers may begin to receive the paper at once.* You can have any time, from one to four months, to fill up your list....(*d*) Send the exact money with each list of names, so that there may be no confusion of money accounts....(*e*) Old and new subscribers all count in premium clubs, but a portion, at least, should be new names; it is partly to get these that we offer premiums to canvassers. N.B.—The extra copy to clubs of ten or twenty is not given where premium articles are called for....(*f*) Specimen Numbers, Cards, and Show-bills, will be supplied free, as needed by canvassers, but they should be used carefully and economically, as they are very costly....(*g*) Remit money in Checks on New York Banks or Bankers, payable to order of Orange Judd & Co., or send Post-office Money Orders. If neither of these is obtainable, Register Money Letters, affixing stamps both for the postage and registry; put in the money and seal the letter in the presence of the Postmaster, and take his receipt for it. Money sent in any of the above ways is at our risk.

Description of Premiums.

Every Premium is described in the October Agriculturist, and also in a **Special Sheet,** *which will be sent* **free** *to every one desiring it. We have room here for the following only:*

Nos. 56, 57, 58, 59—Pocket Knives. —NOW FOR THE BOYS AND GIRLS!—These Premiums are among the most pleasing and useful that we have ever offered. Every boy, and girl, too, wants a pocket knife. We give them an opportunity to obtain a most valuable one for nothing but a little effort. These knives are made by **Mr. J. P. Swain,** whose work is equal to any done in this country or Europe. No. 56 is a neat, substantial Knife, with three blades and buck-horn handle. No. 57 is a still finer article, with four blades and buck-horn handle. No. 58 is an elegant Knife, with four blades and shell handle. No. 59 is a Ladies' Pocket Knife, a beautiful article, with four blades and shell handle.

Nos. 88 to 93.—Volumes of the American Agriculturist (Unbound). — These amount to a large and valuable Library on all matters pertaining to the Farm, Garden, and Household, and contain more varied information on these subjects than can be obtained in books costing three times as much. The price of the volumes is $1.50 each, at the Office, or $1.75 if sent by mail, as they must be post-paid.——They are profusely Illustrated, the Engravings used in them having alone cost about $35,000. Those obtaining premiums for less than twelve volumes can select any volumes desired, from XVI. to XXVIII., inclusive. For ordinary use, the sets of numbers unbound will answer quite well.

Nos. 94 to 99.—Bound Volumes of the Agriculturist.—These are the same as Nos. 88 to 93 above, but are neatly *bound* in uniform style, and cost us more for binding and postage. Sent post-paid.

Nos. 100 to 111.—Good Libraries. —In these premiums, we offer a choice of **Books** for the **Farm, Garden,** and **Household.** The person entitled to any one of the premiums 100 to 111 may select any books desired from the list of our books published monthly, (see another page), to the amount of the premiums, and the books will be forwarded, Post or Express paid. $25 or $50 worth of books pertaining to the farm will give the boys new ideas, set them to thinking and observing, and thus enable them to *make their heads help their hands.* Any good book will, in the end, be of far more value to a youth than to have an extra acre of land on coming to manhood. The thinking, reasoning, observing man will certainly make more off from 49 acres than he would off from 50 acres without the mental ability which reading will give him. ☞ Let the Farmers of a neighborhood unite their efforts and get an agricultural Library for general use.

No. 112.—General Book Premium. Any one sending 25 or more names may select Books from our published list to the amount of 10 cents for each subscriber sent at $1; or 30 cents for each name sent at $1.20 each; or 60 cents for each name at $1.50. *This offer is only for clubs of 25 or more. The books will be sent by mail or express, prepaid through by us.*

containing a great variety of Items, including many good Hints and Suggestions which we throw into smaller type and condensed form, for want of space elsewhere.

Postage 12 Cents a Year in Advance.—The postage on the *American Agriculturist* anywhere in the United States and Territories, *paid in advance*, is 3 cents a quarter, 12 cents a year. If not paid in advance, twice these rates may be charged.

How to Remit:—Checks on New York Banks or Bankers are best for large sums; made payable to the order of **Orange Judd & Co.**

Post-Office Money Orders may be obtained at nearly every county seat, in all the cities, and in many of the large towns. We consider them perfectly safe, and the best means of remitting fifty dollars or less, as thousands have been sent to us *without any loss.*

Registered Letters, under the new system, which went into effect Oct. 1, 1868, are a very safe means of sending small sums of money where P. O. Money Orders cannot be easily obtained. *Observe*, the *Registry fee*, as well as postage, *must be paid in stamps* at the office where the letter is mailed, or it will be liable to be sent to the Dead Letter Office. *Buy and affix the stamps both for postage and registry, put in the money, and seal the letter in the presence of the postmaster, and take his receipt for it.* Letters thus sent to us are at our risk.

Clubs can at any time be increased by remitting for each addition the price paid by the original members, if the subscriptions all date at the same starting point. The back numbers will, of course, be sent to added names.

Bound Copies of Volume XXVIII (1869) are now ready. Price, $2, at our office; or $2.50 each, if sent by mail. Any of the previous twelve volumes (16 to 28) will be forwarded at the same price. Sets of numbers sent to our office will be neatly bound in our regular style at 75 cents per vol., (50 cents extra, if returned by mail.) Missing numbers supplied at 12 cents each.

1,000 Eumelan Vines.—Any subscriber to the *American Agriculturist* may order of us one or more of these remarkable grape-vines before the 15th inst. at the 1,000 price, viz.: No. 1 Vines, $1 each; Extra, $1.75 each. Post-paid by mail, or by express, the receiver paying express charges.

Letters Without Names Signed.—It is useless to send these; we can not give them attention. Here are a lot of *anonymous* inquiries about Kansas lands, White Wire, sundry Doctors, various implements, Dealers, etc., several of which would be answered by letter if we knew just where to direct. If we answered all such questions *in* the paper, it would contain little else; and if we answered all by letter, we could do little else. Better save your time, paper, and postage, than to write anything whatever without giving your *true* name and address. These are not published when the writer desires them withheld.

VALUABLE BOOK—FREE!—The Publishers of this Journal issue, every year, two Volumes, prepared with great labor and care, containing a large amount of valuable information, finely illustrated, in neat illuminated covers. These volumes should be in every household. They also contain very complete Almanacs, with calendar of work to be done each month, on the Farm, in the Garden, etc. One is the **"Agricultural Annual,"** and the other the **"Horticultural Annual,"**—entirely distinct in matter, illustrations, etc. Each volume contains **152** 12mo pages. They are of permanent value, and every one should have each year's issue. There are now Nos. **1, 2, 3,** and **4,** (for 1867, 1868, 1869, and 1870,) of each work.....To make these more widely known, and as a premium, also, the Publishers offer to send any one of these eight volumes, post-paid, to any person who will, during MAY or JUNE, forward a subscriber for the current volume of the *American Agriculturist* (that is, for 1870), at the regular subscription price of $1.50. One copy of any volume of the Annuals desired, will be presented for *each* subscriber thus sent between May 1st and June 30. (Such names will not, of course, be counted in lists for the general premiums described, on page 165.)

Out-of-door Whitewash.—Chas. Stierlin, of Washington, D. C., asks us "to publish in the May issue of the *American Agriculturist* a recipe for a good whitewash for fences and out-buildings, that will not be washed off by a few rain showers."—Here it is. Take good quick-lime, in lumps, slake it with hot water, and while slaking add, to what will make a pallful, a pound of tallow, or any grease free from dirt. It may be rancid, smoked, or otherwise unfit for kitchen use. As soon as the violent slaking is over, stir thoroughly. All the water should be added before the slaking ceases, and the mixture should be very complete. This forms in the whitewash an insoluble lime soap, which, if the whitewash is diluted with cold water, often separates in minute clots. If the mixture be well made, it will be very smooth, and is little affected by rains.

Harris on the Pig.—A slight delay occurred in the issuing of this work, owing to the inability of the author to furnish the final pages, on account of illness. The work is now ready, and will commend itself to all who take an interest in the improvement of swine, as well as in breeding and rearing them in the best and most profitable manner. The advertised table of contents will show how full of information it is.

Every Saturday.—Fields, Osgood & Co. have made a hit with this journal in its new form. It gives the best foreign engravings, and excellent selections from English magazines, at a very popular price. Admirers of Dickens—and that includes almost everybody—will be glad to know that he has begun a new story, which is published in Every Saturday from the author's advanced sheets.

Mark Twain has been engaged to edit an agricultural department in the Galaxy Magazine. Mark is a humorist by profession, but we doubt if he will succeed in doing anything as funny as the reports of what is done at the Farmers' Club in earnest.

The Handy-Book of Husbandry, is the title of a work by Col. George E. Waring, Jr., which E. B. Treat & Co. announce as in preparation, and of which they send us specimen sheets. In accordance with our custom, we defer any extended comments until the complete work is received.

Haying and Harvesting Machines. Mowers and Reapers, Tedders, and Horse-rakes, of the best kinds, must be ordered early, in order to be reasonably sure of getting much use out of them this year. Thousands of farmers are disappointed every year, and some, strange to say, year after year, because they want the best, and order too late.

Pleasant Valley Grape Growers' Association.—At a recent election, C. D. Champlin was chosen President, and H. Gardener, Secretary of this Association. The 11th Annual Fair will be held at Hammondsport, Steuben Co., N. Y., Sept. 25th, 26th and 27th.

Cement for a Manure Pit.—H. F. Goodban, Erie Co., Pa., asks—"Will water-lime answer for laying the wall of a manure pit?" and adds, "I want to make a cheap, durable cement, that will not spoil by freezing."—Hydraulic lime occurs in market in two principal forms—"Water-lime" and "Cement." The cement is ground, and is the superior article. The water-lime, however, is of fair quality, answers for all coarse purposes, and would, we think, make an excellent mortar for such a wall, and for the grouting and cementing of the bottom. If, on trial, the sample is found to make a close, firm mortar, none other need be used, even for the top, which will be exposed to freezing. This portion might be laid in cement. Walls laid early in the season will not be injured by frost if the surfaces be smooth.

Pear Duchesse de Bordeaux.—We have before spoken of the excellence of this winter pear. Messrs. Smith, Clark & Powell, of Syracuse, N. Y., send us a colored plate, which is a very good representation of this large and fine variety.

Plow Deep, but not too deep at one time. F. B. Minch is right. He writes: "I sometimes feel like writing after reading the New York Farmers' Club reports about shallow culture. I have a little over 100 acres under cultivation, and my motto is, 'Plow deep, and manure as you go.' It does best for me. I think that the teaching of the shallow culture theory is productive of much error in the community."

Death of Seth Boyden.—Mr. Seth Boyden died on March 31st, at the advanced age of 82, in the City of Newark. Mr. B. was the pioneer in many of those branches of business to which Newark owes a large share of its prosperity, and by his inventions, contributed much to the wealth of others, though he acquired little himself. It is on account of his labors in horticulture that we notice his demise. He was particularly successful in raising seedling strawberries, several of which maintain a rank among the valuable varieties. The Agriculturist, Green Prolific, and Boyden's No. 30, are among Mr. Boyden's contributions to our list of varieties.

Croquet.—B. Brown. This game is not patented. A particular style may be.

A Suggestion to Farmers' Clubs.—"D. R.," Beverly, Mass., suggests that Farmers' Clubs make their President a member of their State Agricultural Society. This would connect the State with the local organizations, and be a proper acknowledgment of services which are not often required.

Cement for a Cellar Bottom.—We are asked what kind of cement should be used for a cellar floor, and how much surface will be covered by one barrel....There are several good kinds of water cement. In the vicinity of New York, builders give preference to the "Rosedale." If the cellar bottom is firm and level, especially if it be stony or gravelly, the cement need not be more than an inch or an inch and a half thick, if mixed with sharp sand or screened gravel; a barrel will cover about one hundred square feet—what the builders call a "square." If the ground is soft, and a grouting of broken stones is necessary, it takes more. In this case, the floor should be covered with stones of the size of an egg, to the depth of three inches, at least, well pounded down to a level surface. The mortar is spread upon this, and worked down into the grouting, and when set, but still moist, the top coat is applied.

Slugs.—B. Thornton, Tioga Co., Pa. The specimens are common garden slugs. Ducks will destroy them in large numbers. Lime-water, or dusting with dry lime, may be used. Another plan is to lay cabbage or lettuce leaves on the ground; early in the morning the slugs will be found gathered under them.

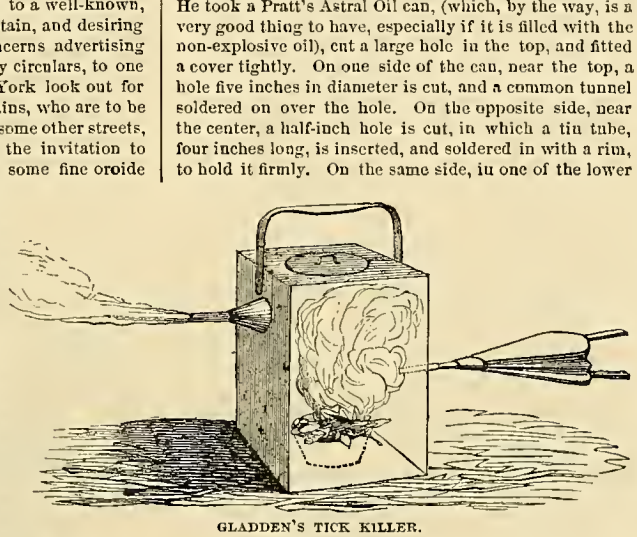
Osiers.—"Subscriber." Osiers are cut when vegetation is at rest. Machines have been invented for peeling them, which the makers should advertise. For home use upon the farm, there is no necessity for peeling.

Sundry Humbugs.—We have quite an assortment of circulars, etc., puffing "electrical apparatus," and various "electrical" appliances for curing all sorts of diseases. There are a few cases where galvanic electricity, properly applied, may be useful, and these are understood and used by all skillful, well educated, regular physicians. But nine-tenths of all the mass of printed stuff—if not ten-tenths,—are sheer humbugs, only useful to work upon the hopes and fears of the people, and get their money. Give all these special electrical doctors a wide berth, and save your money.....Beware of all associations, professing to cure "private diseases," "errors of youth," etc. They are invariably catch-pennies, or catch-dollars, each run by one scheming man, who does a pretty safe business, because his fleeced victims are not likely to expose him. We have had many cases reported to us, where these fellows have drained the last hard-earned or borrowed dollar they could get from their victims, and left them in the end worse off, after having their hopes excited temporarily by the use of stimulants. These operators are chiefly skillful in writing plausible letters, when they can get hold of victims asking, or desiring aid. Let those afflicted apply to some known and reliable physician .....The spurious money operators are as thick as "toads after a shower." In addition to the many before referred to, we have before us the circulars of J. W. Smith & Co., Wm. Andrews, C. L. Wilson, C. J. Crandell, Daily & Co. (multitudinous, and ingenious), Armstrong & Co. (Daily & Co. we suppose); W. M. Martine, an "attorney," who sends printed circulars—but the record is long enough. Most of these so-called firms send the same circulars, names, newspaper slips, etc., and the variety of names assumed is only to mislead the Post-office authorities—a new name being taken as soon as the old ones become known, and their letters are stopped. They now, as a blind, generally put their names and address on a separate card, or write them in a different hand on the back of their documents.....As we expected, Messrs. McKillop, Sprague & Co., pronounce the "Grand Presentation Enterprise" of H. P. Jones, noticed by us last month, "an entire fraud."..... The "Metropolitan Jeweler's Association," of New York, is a humbug, and the statement about crown watches sent here is an entire falsehood.....No sane man will trust a $5 bill to the "Eureka Gift Company," of Saratoga Springs. Better hold up a hat, and wait until a "$40,000 hotel" drops into it from the moon.....To several inquirers. Music Boxes, playing four or five tunes, and costing $12 to $15 each, are sold by some regular dealers. Those advertised by circulars, at $1 to $3 each, are usually swindles. If anything is returned for the money, it is a little hand or reed instrument, to be

blown by the month, and worth 5 to 25 cents each, on which you can play as many tunes as you know how to. .....Beware of Lands at 40 cents per acre, the proprietor of which is ashamed of his own name, and dodges behind a P. O. Box. The "C. O. D. Deeds" will be good for land in the moon, but not on this planet..... We hope every person will treat Michelin & Co. as did the P. M. at a Maryland office, viz., insist on having the watches in hand and examined, before advancing $2 or $1 as an "assurance of sincerity." Haven't "Michelin & Co.," under their (*his*) various *aliases*, got "*assurance* money" enough to quit "business?".....Oroide Watches. There is a composition of metals, cheaply made, much *resembling* gold in appearance, and retaining its color well, and we have seen some very fair watch cases made of it. But we have also seen so much humbug in the same line, that we can but caution our readers in respect to sending money to unknown parties for anything of the kind. It is nonsense to assert that an oroide-case watch can be furnished for $15 or $20, *equal* in neatness, style, and *time*, to a gold watch costing $150 or $200. The case is comparatively a small proportion of the cost of a $200 gold watch—the "works" are the important part. If one wishes an oroide watch, or, indeed, any other kind, the only *safe* way to get it is to have it procured by a dealer of your acquaintance, or send to a well-known, reliable firm having a reputation to sustain, and desiring to sustain it. There are ten bogus concerns advertising watches of various kinds, especially by circulars, to one reliable one.....If you come to New York look out for those sleekly-dressed, extra-polite villains, who are to be met with at any time on Broadway and some other streets, and who will offer you their card with the invitation to "drop into their place *just to look* at some fine oroide watches, jewelry, plated-ware, etc." The "envelope game" is their great hobby just now, and they will skin a man of his last dollar if they once get him into their den. Remember the story of the "spider and the fly," and don't "go and do likewise.".. .. A lady is informed that we cannot undertake to collect prizes drawn in lotteries—not if we get the whole $10,000 as commission. She had better set her lawyers to look after those Kentucky lotteries that won't hand over the money due her. It must have been a mistake on their part, or they would never have let a ticket drawing so large an amount go out of their own hands. *All lotteries* are swindles. .....A subscriber asks about "B. F. Williams, Importer of Watches, etc., 303 Broadway." We find no such name as "Watch Importer" in the City Business Directory, and no such sign at the door or stairway of 303 Broadway.—The same of "A. W. Beecher, 678 Broadway." ... ..Recipes for vinegar, honey, cheap oils, etc. Any person sending $5, or any other sum, for one of these recipes, is likely to lose his money, and time, no matter who advertises them by circular. We have too many of these circulars from various parties, to describe them in detail—nearly all are humbugs!.....Either a sore-head, or a very green man sends, or gets a letter sent, to us all the way from Kansas, asking where he can get some genuine counterfeit money. Others have tried similar tricks. We hope they feel better—to the amount of 3 cents postage and cost of paper and envelopes. *We* get 4 to 6 cents a pound for such documents, when not needed for after-reference.....Still more "Receivers" for Riverside Enterprise. Elmore & Co., 694 Broadway, claims to be one. He figures close—wants $3 for taxes, 15 cents for paper and postage—a humbug, just as is every other so-called "receiver," or agent, of Riverside, or any other gift enterprise. Wm. Badeau, 676 Broadway is just like Elmore, and uses the same letter-head, except the name. R. Smith & Co., No. 2 Amity St., is in the same business, only he asks but $1.50 commission, as 5¼ per cent on a $26 watch. Mr. Gaylor will need to follow these fellows sharply. They change names every week or two, apparently. ....."Recipe" sellers by the score in various towns, from Maine to Texas, are filching people's money. Sambo, in cholera times, said, "the bes' way was to eat nosain at all, and den you no expose yourself," and that is what we advise in regard to all these recipe sellers..... "Dollar watches," or "time indicators," are not worth buying—not by any means—even if the Tribune does advertise them.....To a lot of inquirers: The doctors you ask about, East and West, are humbugs, and so is every doctor who advertises sure cures for all diseases. We *know* this is so, and have said it a great many times. If you don't believe us, why keep on asking us to repeat it? .... In a villainous business is he who advertises himself as Dr. Secley, Albany, N. Y. The P. M. should stop his letters, and we have some of his documents which the District Attorney of that County should attend to..... Several more cheap sewing-machine circulars from sundry quarters. One offers a fine dress with three $5 machines. He hails from the "humbug roost." Let them all alone, or you will surely regret your money gone.....Those $2 pistols or revolvers advertised in Michigan, Chicago, and elsewhere, are a swindle—the money *goes*, but no shooting-iron, or anything else, *comes*.....J. S. Colgate, of the "Eureka Photograph Co.," 1 New Chambers St., New York, has been arrested by Mr. Gaylor for sending vile obscenities through the mails, and is now in jail awaiting the penalty of his disgusting offense.

Orchard Queries.—A number of these must be answered in a lump. A young orchard should be kept clear of weeds; and this is best done by cultivating hoed crops, such as potatoes, melons, and root crops generally, all to be well manured. When the orchard is in bearing, it is best not to cultivate it. Nor is it best to seed it down to carry off each year a heavy crop of hay and expect a crop of fruit besides. Seed the ground to clover and allow the pigs to pasture on it.

Gladden's Tick Killer.—Our friend, Theodore Gladden, of Florence, Mass., has improvised a simple apparatus, which proves very effectual in killing the pests that, in spring, especially, so torment the sheep. He took a Pratt's Astral Oil can, (which, by the way, is a very good thing to have, especially if it is filled with the non-explosive oil), cut a large hole in the top, and fitted a cover tightly. On one side of the can, near the top, a hole five inches in diameter is cut, and a common tunnel soldered on over the hole. On the opposite side, near the center, a half-inch hole is cut, in which a tin tube, four inches long, is inserted, and soldered in with a rim, to hold it firmly. On the same side, in one of the lower



GLADDEN'S TICK KILLER.

corners, a small hole is cut for ventilation, and fitted with a stopper. A few ashes are put in the can, and then an iron dish, or pan, with live coals and some tobacco leaves on top. When the can is well filled with smoke, bring the nose of the tunnel just to the outer ends of the wool, which should be held apart a little, on the sheep,—if too close to the skin, it might be burned; apply a bellows to the tube on the opposite side, and blow away. A few puffs in a place are sufficient; close the wool, and repeat in another place, going carefully over the whole body. When the operation is done, nearly or quite every tick will be dead, and the sheep, if they could, would give you thousands of thanks.

Books Acknowledged.

The Civil War in America, by J. W. Draper, M. D. Vol. 3. Harper and Brothers: $3.50 per volume.

Self Help, with Illustrations of Character, Conduct, and Perseverance, by Samuel Smiles. Harper & Bros.

The Bazaar Book of Decorum. The care of the Person, Manners, Etiquette, and Ceremonials. Harper & Bros.

A German Course, by Geo. F. Comfort, A. M. Harper & Brothers: $2.

Henry Cortland, or What a Farmer Can Do. By A. J. Cline. J. B. Lippincott & Co.: Philadelphia.

Tom Brown's School Days at Rugby, by an Old Boy. Harper & Brothers: Paper, 50 cents. This is a capital book for boys, by Thomas Hughes, M. P., and we are glad to see a cheap edition of it.

The French Echo, or Dialogues to Teach French Conversation, by Jas. H. Norman. A. S. Barnes & Co.: $1.25.

Pamphlets Acknowledged.

Insects of Missouri. The Second Annual Report of C. V. Riley, State Entomologist.

Small Fruit Instructor, by A. M. Purdy, Palmyra, N. Y.

Prospect Park, Brooklyn. Tenth Annual Report of the Commissioners, finely illustrated by photographs.

Best Fowls for Eggs and for the Table.—Alvin Adkins, Washington Co., Ohio. The French breeds of fowls are the only large, quick growing good table fowls which do not incline to sit. Their eggs are large and numerous. The Crevecœur, Houdan, and La Flèche have been bred for several years in this country, and all are highly commended. They are not yet plenty enough to be "cheap," good trios readily selling for $30 in the spring. Leghorns are excellent layers, are hardy, never sit, but though good to eat, are not usually classed as "table fowls."

"Earth-closets and Earth Sewage."—This is the title of a new pamphlet, by Col. Waring, on this very important subject. The whole community is rapidly waking up to the realization that the dry earth system is a success; that it has a wider application and scope than at first could have been anticipated, and that it is to work great changes in some of our domestic arrangements. Our readers know that we have long been advocates of earth-closets, and the quick abolition of the distressing privy, which, outside of the reach of city water-pipes, is universally regarded as a necessary nuisance. The book just issued is one full of instruction. Drawings are given of all sorts of commodes and fixed closets. Systems for the disposal of chamber and kitchen slop water are detailed, and the superiority of the dry earth system, even in cities and towns where water-works exist, is discussed and demonstrated. The pamphlet contains 104 pages, 8vo. It is published by Orange Judd & Co. Price 50 cents.

Stable Manure.—J. R. Williams asks: "Which is worth the most—Horse manure at $1.50 per load, or bone-dust at New York prices?"—The former would be the cheapest at twice, if not at thrice, the price.

How Oils "Explode."—A. S. Canfield, (no State), writes, that he uses a benzine mixture for burning, and says that it cannot be exploded. "We have burned it in pipes, in bottles, in hollow potatoes and have thrown it on the stove."—The expression that an *oil* is explosive conveys a wrong idea. No oil will explode by either of the means above mentioned. An oil may even extinguish a burning match when thrust into it, and yet be highly dangerous to use as a burning fluid. It is the *vapor* of these oils mixed with air that is dangerous, as far as explosion is concerned. Where a partly filled lamp has the portion above the oil filled with a mixture of vapor and air, it may explode. When a lamp is filled while lighted, the mixture of air and vapor in the can or filler, explodes upon coming in contact with the flame; the oil itself does not really explode, though it does serious injury when scattered by the explosion. When Mr. Canfield says, his oil will not explode by heating it or burning it, as above stated, we can believe it—but these are not the conditions under which such oils are dangerous. We repeat that it is positively unsafe to use oils that form an inflammable vapor at a temperature lower than 110 degrees. It is against the laws of the country to sell them, and it is contrary to the teachings of science and the lamentable teachings of experience to use them.

Cyclopædia of Biblical Theological and Ecclesiastical Literature.—Prepared by the Rev. John M'Clintock, DD. and James Strong, DD., vol. III., E. F. G., N. Y.; Harper & Bros. This important work has now reached its third volume and will be completed in three or four more; the death of the Rev. Dr. M'Clintock will not occasion delay in the appearance of the work, as the matter was prepared for the whole before the first volume was put in type. We have had occasion to know something of the thoroughness of the labors of the authors, and have no doubt that it is, as its publishers claim—superior to every former work of the kind ever issued in Europe and America.

Flowering of the California Pitcher Plant.—The specimen of the Darlingtonia referred to in March, p. 101, has since bloomed. This is the first time, so far as we have heard, that this interesting plant has flowered in cultivation.

Tree Seeds.—"G. P. R.," Painesville, O. A note on the Larch on p. 21, (Jan.) gives the precautions to be observed in sowing the evergreen seeds you mentioned. The Honey-Locust seed it is generally best to scald, though it will often grow without this preparation.

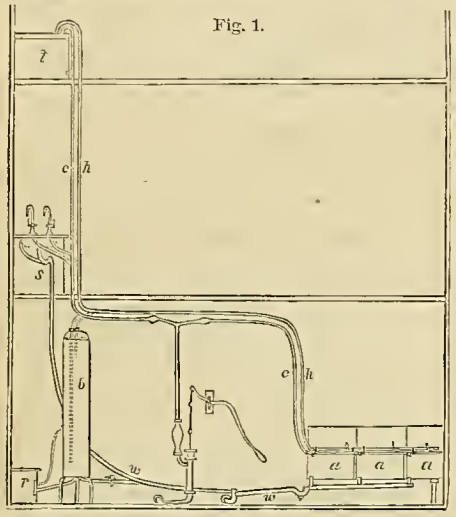
Naphtha for Bark Louse.—A tree infested with the Oyster-shell Bark-louse, is such a hopeless case, that we have publish l some desperate remedies. Ethan Adams, Brecksville, Ohio, had trees thickly covered with bark louse and painted them from "stem to stern" with naphtha." "No harm came of it, but the lice were almost exterminated. The proper time to apply it is, I think, just before the buds start." Please understand, that we give this and other remedies for the trouble, as they are sent to us, without commending them. Those who wish to experiment, should do so cautiously. We shall be glad to learn if naphtha or any other application, will kill the lice and not injure the tree. Fortunately we have no infested trees on which to make the experiment.

Housekeeping Conveniences—Plumbing.

Our previous articles on convenient houses, have called out many inquiries, especially concerning Tanks, Boilers, Stationary Wash-*trays* (often called Stationary Wash-*tubs*), Water-Backs, etc. Many persons living remote from cities are desirous of knowing *how* they are arranged.

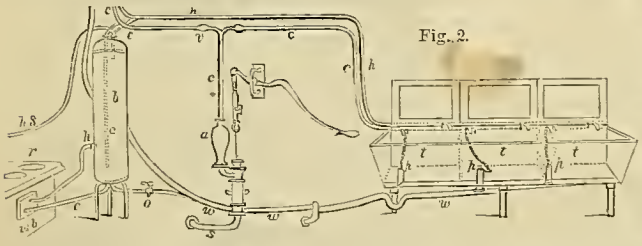
Fig. 1 gives a general view of a 2½-story house with the main apparatus in the first story. This is more frequently placed in the basement, in which case we can imagine the pipes carried up into another story. The tank, *t*, is filled from the roof, or by the pump. The cold water pipe, *c*, conveys the cold water down to near the bottom of the water-tight copper boiler, *b*, and forces the hot water out through the pipe *h*, entering a little way into the top, by which it is carried up to the sink *s*, in the next story, to the stopcocks in the wash-trays, *a*, *a*, *a*, and anywhere else throughout the house, to any point not higher than the tank. The force pump drives the

Fig. 1.



cold water into the trays, if the stopcocks be open; also, on closing these, it is forced into the boiler, and up into the tank when desired. The pressure from the tank keeps this cold water pipe always full for supplying wash-stands (*s*), bath-tubs, water-closets, etc. The waste-pipe, *w*, carries away filthy water from the trays, from the wash-stands, *s*, etc..... **Fig. 2** shows the lower part of the apparatus in a plainer form. The boiler, *b*, is of strong copper, riveted—its strength proportioned to the pressure. For a tank in 2d or 3d story we use what is called "Croton Pressure" strength. From near the bottom of the tank a pipe runs through the chimney back,

Fig. 2.



out shown here, to a *water-back*, *w b*, in the range, *r*, from which another pipe, *h*, runs back to the boiler at a higher point. This water-back is a strong iron box, say 10 to 14 inches long, 6 to 10 inches high, and about 2 inches thick: and it takes the place of the rear fire brick in the fire chamber of the range or cook-stove, so that it is always in direct contact with the fire, and being always full of water does not burn out. With the smallest amount of fire the water is warmed, rises through *h*, while cold water flows in through *c*. In this way the boiler is always kept hot as long as there is any fire. The boiler holds from 30 to 60 gallons, and the body of water will keep warm long after the fire goes out. One holding 35 to 45 gallons is sufficient for a medium house; 30 gallons will do for a small house. The hot-water of course always rises to the top, and is drawn off through the pipe *h*, as wanted. In good plumbing, a waste-pipe leaves the lowest point, with a stopcock, *o*, usually closed, so as to draw off any sediment that may collect in the boiler should this occur, or the water get foul, or it be desirable to empty the whole apparatus. From the hot-water pipe, branches run to any points desired, as *hs*, to a sink in the kitchen; one or more upwards, with side branches to the chambers. This also extends up over the top of the tank (as in fig. 3), and answers as a safety-valve to the boiler. In brisk boiling a little hot-water will sometimes rise over into the tank, and keep it from freezing. Another branch runs along the wall with a stopcock opening into each of

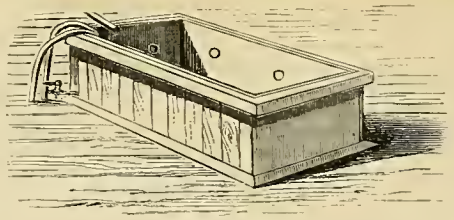


Fig. 3.

the wash-trays, *t*, *t*, *t*. The pump draws the water through the supply pipe *s*, from the cistern, reservoir, or well, and forces it up into the tank, or out at any point where a stopcock is opened; in the right branch a cold water stopcock opens into each of the trays. A valve *v*, in the horizontal pipe above the pump, prevents drawing water from the tank into the trays. It will be seen that by this arrangement, two pipes answer to carry hot and cold water *up* or *down*. The waste-pipes, *w*, *w*, *w*, collect and carry the water out through the wall into a drain. The bend in this, near the first tray, is called a *stench-trap*—the bend always keeping full of water so that no odors can pass back from the drain. These traps should always be provided with a broad screw in the lowest point of the bend, for removing any sand or other obstruction that may chance to settle there.—The wash-trays are made of strong clear pine plank, 1½ or 1¾ inches in thickness, let into each other at the joints, and these well smeared with white-lead ground in oil, before putting the pieces together. The case is divided into two or three compartments as desired. The back and end pieces are perpendicular and the front pieces inclined in at the bottom, so that while the tub is 19 or 20 inches wide at the top, inside measurement, it is only 13 to 14 inches wide at the bottom. Perpendicular depth inside, 14 inches. The top front edge should stand about 33 inches above the floor. The length of the trays may be about 2 feet each. The bottom board is a little inclined to the left, and in the lowest rear corner of each tray is a waste-pipe, *p*, with metallic plug attached to a chain from near the top, so that it can be opened readily. Two trays are convenient for different kinds of suds or clothes, and a third still more so, for rinsing. A wringer can stand upon the right end, or be changed to the division boards. The covers, if neatly fitted, form a good ironing table when shut down. It will be readily seen how great a convenience are these "stationary trays," and how much tugging and lifting they save. Turning a stopcock lets in hot-water as desired. Cold water is pumped directly in, or may be drawn from the tank if the supply be great enough, by omitting the valve *v*; and by lifting the plug, the wash water runs away. We can hardly wonder that when servants are asked to go to a house, the first question usually is "Have you stationary wash-tubs?" which implies boiler, etc., with hot-water for dishes and other purposes always ready for use. This apparatus is supposed to be in a separate wash-room or laundry. The whole may be in the Kitchen. The pump may stand at the edge of the sink with a cold water spout and cock near the air-chamber, *a*. This air-chamber is not necessary, but is desirable as a protection to the pipe and pump, and it makes the pumping easier, and gives a steady stream of water.——All pipes should be kept from the walls, at least by a board, and should be run up by the side of a chimney, or through a closet, and not against the outer wall. It is better also, when practicable, to have the tank, etc., on the warmest side of the building. Lead pipes, where passing through wood-work should fit closely, or be surrounded with cement and broken glass, otherwise rats in attempting to enlarge a passage will sometimes cut through the lead pipe. For size and weight of lead pipe, for apparatus of moderate size, see "Plumbing specifications," on page 89 (March No). For the great utility and profit of such an arrangement, see page 88. Size, arrangement, etc., may be varied to suit taste, means, location of rooms, etc.

Fig. 3 represents the Tank in some upper room, with its top a little below the eaves-trough, from which an inlet pipe is shown. The dark spot, just below it, indicates the over-flow pipe running down to the cistern. The hot and cold water-pipes are shown coming up from below. The short pipe (with stopcock for shutting off the water if ever desired for repairs or otherwise,) lets the water down or up. The extended curved part above, discharges water pumped up, and also answers as a "spring" in the pipe.—The tank is made with 1¼-inch matched plank, built inside a scantling or wall-strip frame, and is lined with sheet lead, well soldered. Two of the "plumber's tacks" are indicated on one side—that is, the lead is let into the wood at these points, the indenture being covered with solder to protect any weakness from the heating in of the lead. These "tacks" prevent the lead from sagging down at the sides, as it will usually do, after long exposure to alternate heat and cold. In building, stronger studding, and closer joists should be carried up under the tank to support the great weight of water. With this provision, it is better to make the tank large,

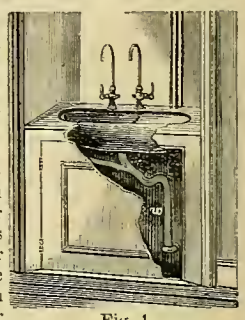


Fig. 4.

and thus save pumping in dry weather. The cost is but a little greater for one of double size. Each cubic foot of contents holds nearly 7½ gallons, or about 4 feet to the barrel; 4×6 feet, 3½ feet deep, will hold about 650 gallons, or 21 barrels. In a house not constructed for the purpose, we made an aperture through the side from the attic floor out over the L, which was half a story lower, and set the middle of a large tank over the heavy beam, supporting the outer end upon the L roof, and covered the outside portion over the roof with double boards, having 4 inches of shavings between, and surrounded the whole with a tin roof extending from the side of the main house over on to the roof of the L. This arrangement has worked well for several years.—It is on the south side, and has never frozen at all. It holds 60 barrels. The tank should always be closely covered, and have a trap-door in the cover to look into the tank. The water comes in from the upper roof only, and when full the surplus runs through a spout on to the L roof and thence to the cistern. The tank is cleaned of any sediment once a year or so. Pipes with branches extend from this to the boiler, to the bath-room, water-closet, wash-sinks, etc. A stopcock in the pipe where it leaves the bottom of the tank, is desirable, both to cut off the water from descending if leakage occur below, and also when cleaning out or washing the tank itself. A metallic strainer is put over the head of the discharge pipe, to stop any leaves or other material entering from the tank, to clog it.

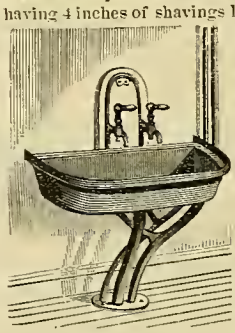


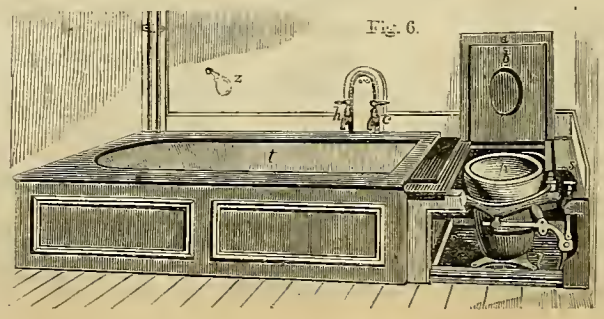
Fig. 5.

Fig. 4 shows the "Butler's Sink," described last month, page 128, with the front door and casing below partly removed to show the waste-pipe, *w*, from which a branch extends to the strainer placed at the upper edge of the oval sink, to prevent its overflowing, if the stopcocks should by chance be left open. A chain plug in the bottom opens directly into the waste-pipe, *w*.

Fig. 5 shows sink, etc., *S—how*, in room *I*, fig. 4, page 88 (March number), with hot and cold water, and waste-pipes. The two supply pipes are seen in the corner. This is, of course, all cased in neatly, with door in front. The stopcocks are set high enough above the sink to admit a pail under them.

Fig. 6 shows the bath-tub and water-closet described last month, with the casing removed from the latter, in front, to show the internal arrangement... ..*p* is the earthen-ware basin, having a metal basin under it, which is turned down by raising the handle, and this movement also lets cold water into the rim of the porcelain, nearly horizontally, so as to wash it. The large 4-inch waste-pipe below has a stench-trap. The walnut cover, *a*, and seat, *b*, are both on hinges, so that by opening both, the wide porcelain bowl answers for receiving slops, and as a urinal. The hot and cold water pipes are seen in the corner, and the supply stopcocks at *h* and *c*; the bell-pull at *z*; the bathing-tub at *t*, neatly cased in with panels. The French pattern bathing-tub is now generally preferred—about 21 inches deep, 23 inches wide, and

Fig. 6.



4 to 4½ feet long at the top.—Bell hanging, ventilators, dumb-waiters, cornices, brackets, etc., etc., are necessarily deferred to next number for want of space here.

Steaming Feed for Cattle.—Wm. H. Dungan, Ind., asks: "Can you inform me of a good plan to steam corn-meal, etc., for cattle and pigs?" Buy a second-hand boiler of 3 or 4 barrels capacity—tubular boilers are best if strong—have it tested to know what pressure of steam is safe; have it properly set and the valve loaded, then fire up, and carry the steam into the bottom of any *deep* closed chest, hogshead, or tight box. An india-rubber pipe makes the best connection, and a piece of "galvanized" iron gas pipe may be used to carry the steam down into the feed in the box.—The same arrangement serves to boil potatoes, meal, etc., for pigs in a cauldron or tub with water.

Cheese Factories—How Far South? J. M. Brooks of Waterford, Miss., wants to know if a cheese factory will do well in his latitude and to be put in correspondence with a man to run one. We would be glad to see the South producing its own cheese, and will thank any who will inform us of the success or failure of cheese factories south of "Mason and Dixon's line."

Ashes on Wet Land.—E. E. Fagan—no manure does much good on really wet land. You can afford to pay 15c. for ashes, to top-dress grass land, and the middle of May will probably not be too late to apply them. They will benefit the succeeding crops for years. 25 bushels is a fair dressing, and 75 will do no harm.

Peas and Oats—"Constant Reader" asks: "Do they mature at the same time, or would the crops be adapted for soiling only?"—They mature about the same time and may be thrashed.—"If used for soiling, would the crop (green) be as heavy as corn or clover?"—Heavier than clover; not so heavy as corn. "Would barley do as well with the peas as oats, and would it answer to seed the field to clover at the same time?" Barley does not make straw enough—Clover seeding would probably do well. "Is there any crop which will give more pork to the acre than good corn?"—No grain crop and no green crop—possibly some root crop.

Keeping Cabbages.—S. J. Sweet, (who gives no county or State), enquires if it is necessary to cover cabbages when stored in the ground for winter use, with straw or other litter. If he lives where the thermometer falls 10° or 15° below zero, when the ground is not covered by snow, it would be necessary to cover with three or four inches of leaves or straw: for although cabbages will stand a certain amount of freezing, there is a point beyond which they will be injured. It is likely that his failure may be from some other cause, such as storing them too early in the season, or putting them in too hot a place.

Sour Milk for Cows.—W. White, West Stephentown, N. Y. Cows may be easily accustomed to "swill," sour milk, whey, buttermilk, etc., especially if mingled with bran or other ground feed. If such high-flavored things as onions, decaying vegetables, fish, etc., are kept out, no harm will be done, and it will form a nutritious and very valuable article of food. It will have no tendency to dry up cows.

How to Sow and Raise Corn Fodder.—We have recently learned of a method for raising corn fodder, practiced by a successful dairyman in Rockland Co., N. Y., which strikes us as so thoroughly practical that without testing it, we give it to the readers of the *American Agriculturist*. The farmer selects good land which has been a year or more under cultivation, plows and harrows it, marks it out in drills three feet apart. In the drills he drops his corn 14 to 16 kernels to the foot. He uses white Southern for seed—then he spreads cow-dung from his stables (his cows are not bedded and the manure is pure cow dung) upon the corn in the drills, using about 8 full loads to the acre. This is then covered out of sight by crossing the furrows with a Shares' coulter harrow, which leaves the ground smooth. The corn comes up soon, gets ahead of the weeds, may be tilled with a cultivator twice and laid by. It grows 10 to 12 feet high, with the buts scarcely larger than one's finger.

How to Get Good Grass on a Hill-side.—"Novice," who resides near a large city in Tennessee, where manure can be obtained at a mere nominal price, asks: "How can I get a good meadow and pasture on three acres of rather steep hill-side?"—If the land needs plowing, spread on it fifty tons of well rotted manure per acre, and plow it under as deep as the character of the soil will allow. Use the harrow freely, and destroy all weeds that spring up. If the soil can be got into good condition, the grass seed, with or without a grain crop, may be sown at once; but if the land is rough, or the soil hard and cloddy, it will be far better not to sow anything on it until next fall; and, in the meantime, work the land repeatedly, to kill weeds and to pulverize the soil. After the manure is partially decayed, plow the land again, perhaps a little deeper than before, then harrow it and destroy the weeds; and if you want a meadow of the grandest kind, that will last for years, spread on some more manure, say twenty tons per acre, and plow it under in August; then harrow the soil smooth, and sow such grass seed as is suited to the climate. Here, we should sow a peck of timothy seed, 4 quarts red clover, 1 quart white clover, and 2 quarts Kentucky blue grass per acre. If the land is now in grass, and it is not desired to break it up, the principal means of making a good meadow and pasture will consist in top-dressing with rotted manure, and the free use of the harrow. Give up the idea of raising a large crop the first year. Spread twenty tons of well rotted manure per acre on the surface, and harrow it repeatedly; and when this first dressing of manure is washed into the soil, or mixed with it, put on another good dressing, and harrow again *thoroughly*. Then sow some white clover and grass seed, and you may reasonably expect a splendid meadow and pasture. We give this advice on the idea that the land, from its contiguity to a large city, is very valuable, and manure very cheap. In such circumstances, it is almost impossible to manure grass land too highly, provided it is not put on in such large quantities at one time as to smother the grass.

Howard Co., Maryland, Agricultural Association.—The farmers of Howard Co. have recently formed an association of which Anthony M. Johnson is President; D. Lawrence, Clarkesville, is Corresponding Secretary. It meets at Ellicott City.

Crops in Illinois.—N. J. Shephard, Lebanon, writes: The present prospect for wheat is very poor. Some farmers intend to plow some of it up as it is utterly worthless. Unless the spring is a very good one the wheat crop will be a total failure in this section of country. All are very busy preparing for planting corn, of which there will be a very large amount planted this year. A good many have come to the conclusion that raising corn at 50 cents, pays better than raising wheat at 75 cts. or $1.00. Farm hands are receiving from $14 to $18 per month, including board. A majority of farmers have decided not to pay as much for harvest hands as they did last year, on account of the fall in the price of wheat.

Carbolic Soap.—"M. C. K.," Freeport, Iowa, asks if it will injure the skin. That would depend upon its strength.—The soap made for washing and medicinal purposes would not.

Saddle Galls in Horses.—"E. P.," of Canon City, Colorado, writes: "Nearly all horses in this Territory have large 'saddle marks' on their backs, and those that have just come from under the saddle have large sores. In this country two horses are considered necessary for the riding of one herder, and as I have stated, their backs get invariably sore. What is the remedy?"—When the horse comes in, loosen the girths, lift the saddle and replace it for half an hour; then wash off the back and lay a bag wrung out of cold water upon it, binding it on. After an hour or two, apply a lotion of 1 drachm Tincture of Arnica, in ½ pint of water. A hard saddle is better than a padded one. The saddle may often be greased to advantage. Instead of Arnica, salt and water, whiskey, and vinegar and water may be used. Sometimes a sheepskin laid under the saddle is a great relief. Saddle the horse half an hour before mounting.

Beet Sugar.—S. R. Collins, Cooper Co., Mo. There is not as yet any process by which sugar can be made from the beet as a *domestic* product. The factories where large capital is employed, have hardly reached success. Those who by their inventions did so much to facilitate the production of sorghum syrup, should turn their attention to beet sugar.

A 4-Acre Farm.—"Amateur" wants to keep a horse and cow, and to raise vegetables for a small family on 4 acres of land now in grass.—Devote quarter of an acre to garden, quarter of an acre to small fruits and quarter of an acre to potatoes. Plow and manure all this deeply and well, manuring heavily. Put in oats and peas mixed, on another quarter acre, for green feed before corn is ready. On another sow carrots and parsnips, an eighth of an acre each, having the rows as long as possible, using fine bone and fish manure compost or superphosphate. Have another quarter acre well manured, plowed, cross plowed, and harrowed "all to pieces" for mangels or sugar beets. Heavily manure a full acre for a succession of corn crops, and sow about one-sixth of an acre once a fortnight from about the first of May to the first of August. On part of this land a crop of buckwheat may be sowed and turned under for manure, or corn may be sowed or turned under for the same purpose. Peas might also be sown and taken off in time for the later sowings of corn, and would make excellent fodder, green or dry. The rest of the land might lie in grass the first year and be fed off by tethering the animals, or mowed for hay. Plow the land, which is left by the oats and peas, and put in Swede turnips with superphosphate in the drills; and as fast as corn is cut, plow and sow turnips up to the 10th of August. After that sow wheat, and mow it as often as it will give a good swath. This is an outline, which, if followed, will teach you what you can do. The important thing is manure enough. Feed oil-cake and bran for the sake of the manure.

Spaying Animals, etc.—"B. F. D." asks: "Is there a book that will give me information on the Spaying of Animals?—I wish to apply it to sheep, goats, and cows."—There is an excellent work on "The Castration of Domestic Animals," by Gourdon. It is in French, and can be imported if desired. We know of no English work.

Killing a Dog.—Eben Wight, Dedham, Mass., says: "Having an old and favorite dog that I wished to get rid of in the easiest possible way, and not liking to shoot him or witness the spasmodic effect of strychnine, I laid him on a blanket in a box and pouring in 4 ounces of chloroform, covered him with another blanket, closed the lid of the box, and all was over with him without the slightest struggle."

The Prize Butter Essay.—The prize offered by the proprietors of the Blanchard Churn, through the publishers of the *American Agriculturist*, in our February number resulted in our receiving 82 documents, many of which were not intended to compete for the prize, but were written to convey hints or descriptions of processes believed to be peculiar and valuable. The competing essays, were submitted to the committee named below, who award as follows:—

Messrs. Editors: The essays upon butter making, submitted to us, have been carefully read, re-read and compared, with reference to the offer which requires the essay to be "thoroughly practical in its whole character," and to "include the management of the milk from the time it is drawn from the cow, the treatment of the milk and cream in the dairy, churning, working, salting, packing and marketing." The competition was very close between several of the essays which were of rare excellence; but we agree entirely in awarding the prize to Mrs. M. A. Deane of Farina, Fayette Co., Ill., whom we congratulate as having rendered important service to the butter makers of the country. Very respectfully, MARTHA C. WELD, VINCENT KENYON.

The successful Essay will probably be published in these pages next month.

Minnesota State Horticultural Society.—This association is sending circulars to fruit growers of the State, with a view to ascertain the hardiness of the leading varieties. Every fruit grower in Minnesota should be a member of the Society, and can be such by sending $1, to Wyman Elliott, Treasurer, Minneapolis, which will entitle him to a copy of the Report.

Fruit for Northern Iowa.—A. E. Rich, writes: "Your special Iowa contributor gives a list of apples well suited to the Central and Southern part of Iowa: a better list for Northern Iowa would be, *Summer*, Red Astrachan, Sops of Wine. *Autumn*, Saxton or Fall Stripe, St. Lawrence, Fameuse, Duchess of Oldenburgh. *Winter*, Plumb's Cider, Perry Russett, Ben Davis, Talman Sweet. I agree with your contributor in regard to mulching trees. If a mulch of coarse manure were placed around trees after the ground has frozen, the trees would be almost sure to be girdled by mice before spring. This could be prevented by banking to a hight of 8 or 10 inches with clean earth, the mulch to extend only up to the bank. The borers, that most trouble us, work in the body and main limbs of the trees. Would keeping the ground clean under trees prevent their working in them?—Probably not.

Moles.—"New Subscriber," Washington, D.C. We have in previous numbers published descriptions of several mole traps, any of which will doubtless prove efficient, if thoroughly attended to. The difficulty is that it takes both time and trouble to trap the animals. We have no faith in any other remedy yet proposed. Mr. A. S. Fuller, of Ridgewood, N. J., has offered $100 for the most efficient means of ridding his grounds of moles.

The Glory Pea.—Several inquirers. The seed is kept by most of our Seedsmen, in packets, at 25 cts. and 50 cts. Mr. Saul, of Washington, recommends to sow the seeds where the plants are to flower, waiting until about June 1st, or until the soil is thoroughly warmed.

Horse-tamer's Secret.—A correspondent in Iowa, sends us one of the recipes, for taming "the wildest horses," which are sold about the country. Oil of Cumin is to be rubbed on the horse's nose, Castor is to be put on his food, and 10 drops of Oil of Rhodium on his tongue. "Before applying the above, the following directions should be observed." The "following directions" are to subdue the horse by throwing him on Rarey's plan, by the use of straps, which is apt to tame a horse without the use of Cumin, Castor, or Rhodium. We are informed that "some will tame the wildest horse and drive him through the streets without a bridle, while others can do nothing with the tamest horse."—"All persons found making known this recipe to others, except authorized agents, will be dealt with according to offense." "Jess so!" Please begin with us.

Hand-book of the Sulphur-cure, as applicable to the Vine disease in America. By William J. Flagg. N. Y.: Harper & Brothers. This is a neat little treatise of 100 pages in which the systematic use of sulphur for mildew is enforced, and its manipulation explained. The author does not seem to be aware that the subject has been discussed by "Horticola" and others, in this country. We have no doubt that the thorough application of sulphur will prevent the evil effects of mildew, and this work gives directions for doing it.

Agricultural Colleges and Experiment Farms.—A pamphlet issued by the Trustees of the Agricultural College of Penn., reporting the results at their *three* experimental farms, has been received. The report presents a mass of results through which the inquirer must wade for hours to learn much. Yet there is a good deal of value in it. We have the highest opinion of the good which well managed, experimental farms may be to the community—and can well see that great benefit might be derived by the students at an agricultural college, if they could watch and help conduct the experiments;—but these farms seem to be conducted entirely separate from the college, and without any idea of giving instruction to the pupils, according to the provisions of the Agricultural College Act. This may be all right, and whether it is or not, do let us have well digested statements of the experiments, showing what they were undertaken to prove; and a classification of the results, showing clearly what they teach. If we criticise unfavorably those institutions, which, accepting the bounty of the government, teach agriculture without practical demonstration, what shall we say of Agricultural Colleges "running" farms 150 miles from their students?

"Farming as a Profession, or, How Charles Loring Made it Pay. By T. A. Bland, Editor North-Western Farmer. Loring, Publisher, Boston." Mr. Loring—not Charles, but the publisher,—has already given us two horticultural novels, and now offers this one which proclaims itself as an agricultural one. The other two were by a young man writing as a woman, and one on reading this, might suppose it was by a sentimental school girl, assuming the name of Bland, did not an advertisement at the end of the book state that it is by T. A. Bland, editor of the North-western Farmer. True genius cannot bury itself in the columns of any country paper, so it goes to Boston and finds a publisher to bring it to light. The book comes to us for an editorial review, and it would hardly be handsome to say that a work by one who claims to be an editor is unworthy of notice—whatever we may think. If we ignore the book altogether, we shall do less than justice to our readers, as they will not know of the work, and we do not wish to assume the responsibility of keeping from them the fact that they can buy 87 pages of large-typed and double-leaded wisdom, by T. A. Bland, all for the small sum of 30 cts. Shakespeare and T. A. Bland are two authors who defy criticism—in vain one attempts to analyze either—we can only humbly render them homage by quoting them. T. A. B. is versatile, and treats one subject as well as he does another. His characters love and buy manure, assert woman's rights and broil chickens, scatter money freely and make it rapidly, and oratorize and osculate as no other people could. The characters are all natural born orators, and all make speeches and kiss one another in a manner wonderful to contemplate. Such matter-of-fact topics as agricultural papers, or such profound ones as the future state, are disposed of with equal facility, while the legal profession catches it in a way to make us thankful that we are not a lawyer. But it is in the highly sentimental portions of the work that the author shows his strength. His style we should set down as inimitable—at least, we hope it is, in witness of which we give the following specimens. Charles, the hero—the author says he is, is meditating. "Just behind this bright constellation of home lights, there arose above the horizon of his memory a bright particular star in the graceful and laughing form of Stella Moreland, only daughter of his father's nearest neighbor." The fancy of calling "Stella" a "bright particular star," is so good that it is repeated a few pages further on. "Laughing figure," is decidedly neat, and we suppose Stella was a plump girl who shook all over when she laughed. "Charles went off to college, and on the evening preceding his departure, they [Charles and the "bright particular" aforesaid] held a long and highly confidential (need I say interesting?) interview, which finally terminated in solemn vows of eternal constancy sealed with kisses of undying love." That is what we call rather nice, than otherwise. All this took place "at the gate leading out to the woodland path, which formed the pedestrian link between the homes of the Moreland's and the Loring's." "Pedestrian link," is good—it savors of sausages, some links of which are said to walk off when one whistles as if calling a dog. Charles having gone to college, in time had to return, and the way he behaved in the railroad car must have astonished his fellow passengers. "He opened his portfolio, and taking from it a package of tiny letters, encased in white envelopes, and tied into a bundle by a rose-colored ribbon, he busied himself for the next hour with their contents. Then taking from his breast pocket, just over the heart, a miniature portrait of a fair-haired, blue-eyed girl, he gazed earnestly and long upon it, and finally kissing it, he closed the case," etc. In the way of description, we doubt if anything in any of Beadle's Dime Novels can equal that bit. The "rose-colored ribbon" and the location of that breast pocket are touches of a master-hand. But it was all very funny to do in a railroad car. The meeting between Charles and the original of this "breast pocket over the heart" picture, is just touching, and altogether "Charles Loring Made it Pay." Charles gets a farm by a process which we commend to all needy young men. He gets six thousand dollars of his father and buys a farm—which is much quicker and vastly easier than the stupid old way of working for one. Charles and Stella are married and do wonders at farming and housekeeping, and continue to deliver short orations full of most excellent sentiment. In commending the sentiment of the work we must not forget the wit which is as brilliant as the other is satisfying, and it is so properly pointed out that he must be a dull reader if he does not laugh in the right place. Charles' sister, who does the funny in the book, says: "In view of the probabilities that we ladies are to take charge of the political interests of the country, very soon, it may be well for the gentlemen to become familiar with the details of housekeeping."——"All laughing (as who could help it?) at Lilies' wit, the party," etc. This is intensely witty, but the tremendous joke of the book is in calling a law firm, Quirk & Gammon, and the profundity of the wit here is carefully pointed out by Charles' sister, who thinks the names *apropos* to lawyers. If Charles' sister had read much she would have known that the names of Quirk & Gammon were long ago rendered classic by Dr. Warren, in his admirable novel of Ten Thousand a Year. We have quoted sufficiently to induce all admirers of this style of literature to buy the work and read the whole. It probably has a moral and a purpose, and we suppose that the moral is that of a good old lady who improved every opportunity to teach by precept and example. "My friends," said she, "as I came along I saw a cow a-switching of her tail. How calm and gentle she looked a-switching of her tail, in this wicked world of strife she was peaceful and contented a-switching of her tail, and I said to myself—Go thou and do likewise."

Apiary for May.—*By M. Quinby.*

Look out for moth worms. Destroy as many as possible, and thereby save loss and vexation. Several generations are produced in a few months, so that one, destroyed now, is equivalent to hundreds or thousands in the fall. They may be found in the morning collected on the bottom boards of the hives where they have become chilled. In some places, good stocks will swarm, or may swarm in the latter part of this month. If hives are not ready, they should be made so. When bees swarm, if a good hive is at once presented, they will accept it ninety-nine times in a hundred; but a delay of an hour, leaving the bees to hang in the cluster meanwhile, might issue in the loss of the swarm. He who depends on making hives as they are needed from time to time, will be likely to have "bad luck." Swarms coming just before a wet, cold spell, should be fed. Have a care that light hives do not suffer for want of honey. Swarming in general is not to be expected before the white clover blossoms. Before swarming, the bees build cells for queens, to make sure the succession after the old one has left. These cells may be seen by examining the edges of the combs in a box hive or by taking out the movable frames, where these are used. When these cells begin to be sealed, look out for the swarm at once. Swarms usually issue between the hours of ten and three, but this is more the case with the natives than with the Italians. The latter will issue sometimes earlier or later. They take as much honey with them as they can carry, and usually settle on some tree or bush not far from the hive, where they *may* stay 24 hours, and possibly, not one. If they start for the woods, scatter water or dirt among them. This throws them into confusion, and sometimes will stop them. Those who believe in rattling pans and blowing horns on such occasions, may use them, but for myself, I lack faith. Paint no hives now, but let them be clean and cool. It matters little how the bees are put into them—may be jarred, dipped, or brushed, but brushing is apt to irritate them. Sometimes the branch on which they are can be cut off, laid on a sheet, and the hive set over it. When the bees are in, *shade* the hive. This is of the very first importance. All hives should be kept from the sun in some way. When clover begins to bloom freely, put on as many surplus boxes as the bees will occupy.

Bee Queries Answered.—By M. Quinby. "G. M. H.," Narrows Bridge, Ky., asks, 1st. "What size do you make honey boxes for the frame hive described in your book, 'Mysteries of Bee-keeping?'..... 2d. Which do you use most, the honey board, or the cross-sticks on the top of the frames?..... 3d. Do you confine the frames at the top to keep them from moving, while hiving natural swarms?.....4th. When dividing frame hives, in the division containing the queen, do you put the frames containing the comb all together on one side, or do you mix empty frames with them?"——*Ans.* 1st. Boxes for the hive mentioned should be 5 inches deep, and 6¼ square, or 6¼ by 4¼ inches. The smaller sizes generally sell better.....2d. I find a very thin honey board the least trouble.....3d. When hiving a natural swarm in a frame hive, spread the frames apart each way, as far as possible, and put the bees in at the top, having previously hived them in a half-bushel measure or any convenient box, then restore the frames to their original position.....4th. The frames containing comb should be all put on one side, on account of the brood. The empty frames in the division without a queen are liable to be filled with drone comb, which is undesirable for breeding. To remedy this, surplus boxes should be put inside the hive instead of frames, as described in the book referred to. You should watch the building of new combs that any irregularities may be detected, and the combs straightened.

"A. L. H.," Narrows Bridge, Ky., asks, "Will it pay to obtain and plant basswood trees for the sake of the honey their flowers would yield, and where would be the best place to obtain them?"——*Ans.* Basswood is the most desirable tree for producing honey, but I hardly think it would pay to plant it for that purpose alone, as it would be 15 or 20 years before the yield of honey would amount to anything. I do not know where the trees could be obtained. I would recommend, if disposed to plant anything for honey, that the Antwerp Raspberry be cultivated in large quantities. There would be a gain in fruit, besides the honey, and the returns would begin the second year.

The Duties on Plants and Seeds

BY PETER HENDERSON.

An amendment to the present Tariff bill now pending before Congress, provides that "Plants, Trees, Shrubs, Roots and Seeds," shall be admitted duty free, if wanted for private use only, and not for sale. A more unjust and absurd provision was never made. If a man who uses Pear Trees or Peas may import these free of duty, why may not another who wants cloth for his coat, or leather for his boots, do the same? If this bill pass, it will open the door to easy fraud to hundreds of unscrupulous men, who will not be slow to take advantage of it. What advantage the provision would be to any amateur in horticulture is hard to conceive, for the privilege of importing trees or plants duty free would not be of the least value to those not versed in gardening matters. In what are known as green-house or hot-house plants, with all the care that we florists can bestow upon them, at least one-half of all we import die outright in a week or two after they are unpacked, and the balance are only saved with the greatest care and attention, many of them not recovering for months. With fruit or ornamental trees the experience is not much better, as a large proportion are lost, and those which live take years to make trees as vigorous as might have been purchased here. Moreover, the cost of plants in the leading florists' establishments in London or Paris, is higher than in this country. These facts are so well understood by nurserymen and florists, that few articles are now imported except new varieties. Few amateurs have the knowledge to enable them to judge of what is novel. When the American in London or Paris, sees at an exhibition of flowers some fine grown specimens of a plant, such as he thinks he never saw here, and buys it, he perhaps finds that his

purchase has been discarded years before as unfit for our climate, or is retailing in our markets at 25c. apiece! Just so with fruits; the Jargonelle Pears, or Kean's Seedling Strawberries, upon which he feasts his eyes in European markets, every gardener knows are worthless here. Yet our privileged amateur will buy them and chuckle to himself that he can get them over, duty free.

If I am correct in these statements it is evident that the benefits intended to be conferred upon the community by the proposed bill are far worse than useless, as the seeming advantage of this privilege would induce many to buy who otherwise would not, and this buying in nine cases out of ten, would result in total loss to the purchaser. But if this bill had been so framed as to read that Trees and Plants might be imported duty free, for sale or otherwise, its passage would be a wise and judicious act. For seeds and bulbs we would make no claim, as such are not quickly perishable, and hence the necessity for their admission free of duty is not equal to that for the perishable commodities of trees and plants. It is only on account of their being perishable that we claim that they should be admitted duty free, and thus save us from six to ten days in the transit; for be it known, that on all articles on which duty is to be paid—such is the tangled length of the red tape arrangements of the New York Custom House—that it requires about the same time to get our goods out of it that it takes for them to cross the Atlantic. In consequence of such delays more than half of our importations of new plants are total losses. Was the revenue to the Government derived from the duties on trees and plants of any considerable amount we might with less reason complain, but the amount must be quite insignificant, and that coupled with the fact of the delay (in consequence of this duty being imposed), in passing through the Custom House prevents us in many instances from being able to get alive many of the more rare and delicate plants. So disastrous has been our experience, since the duty was put on, that in importing delicate plants from Europe, we are obliged to order a dozen in the hope of getting one alive to propagate from. We trust our legislators will view this matter fairly; we care nothing about the amount paid for duties, these are trifling; but we bitterly complain of the delay to our perishable goods incident to the collecting of these duties.

Ogden Farm Papers—No. 5.

We have at last had an opportunity to ascertain the quantity of fodder used, by actual weighing. The platform of the Fairbanks scale is a part of the main floor of the barn between the cutting machine and the box in which the feed is mixed. By building temporary sideboards on the platform, we are enabled to weigh 1,000 lbs. of cut-feed at a draft. The chop consisted, on this occasion, of about one-half fine hay from a poor stack that was bought for $12.50 per ton, one-fourth mouldy cured oats of our own growing, and one-fourth corn-stalks kept since harvest, in an out of door stack. The average value of the whole, taking the hay as the basis, was not more than $10 per ton. Of this chop we used 2,840 lbs. It was thoroughly wetted, and well mixed with 342 lbs. of wheat meal, costing 2c. per lb.;—the whole cost of the material was $21.04. To which must be added $3 for fuel and labor (estimated), making the whole cost, say, $24. The stock fed was as follows:—Mules (large), 2; Horses, 7; Colts, 3; Oxen, 2; Steers (coming 3 years old), 3; Bull (coming 3 years old), 1; Cows, 12; 2-year old heifers, 3; Yearlings, 6; Calves, 9. Total, 47. The steamed fodder lasted exactly four days—from Sunday morning until Wednesday night,—equal to 188 days feed for one animal of average size, giving as the cost of keeping each animal for one day, 12¾ cents. In addition to this the horned cattle (old and young) received about an average of one quart of meal per day, apportioned according to their needs. This costs 3c. a day additional for these animals, and raises the average cost of all (including the horse stock) to 15c. per day, or $4.50 per month. We feed, on an average, from Nov. 15 until May 15—when soiling rye should be fit for cutting. This makes the cost for wintering $27 per head. In addition to the above, the mules and colts, and a stallion kept for service, receive a little grain. Just what allowance to make for age and condition, I do not know; I have stated the whole case as it stands, and any farmer who is accustomed to the care of stock can figure the average to suit himself. I draw from the facts the following deductions:—

1. I can raise a Jersey heifer to her first calving (two years old) for $56 for her winter keep, and $14 for summer keep—on hired pasture land; $70 in all—and this *pays*.

2. I can raise a colt to four years old, for $108 for winter keep, and $52 for summer keep—hiring pasture; $160 in all, and if this don't pay it will be because I don't raise the right kind of stock. If I feed grain to young colts I expect them to pay cost and interest, twice over, when the time for selling comes.

3. I can keep a full grown cow—allowing her to eat fifty per cent more than the average of my stock, for $40.50 for winter keep, in addition to the cost of her summer feed, which I estimate as follows:—

Interest on cost of ½ acre of land, say, ($300 per acre) at 6 per cent, and taxes..	$10.00
Cost of seed, $3; cultivation, $5, and harvesting, $2.	10.00
	$20.00
Add for winter keep....	$40.50
Total cost of year's keep	$60.50

If the animal were kept at pasture instead of being soiled, $20 would pay the interest on the value of the land required for her support. If this don't pay (with an average of 200 lbs. of butter), it will be because butter and skimmed milk have gone much below the average value of the past ten years. I have left out of the account the cost of labor,—but I have also left out the item of manure which will more than equal it. It should be understood that my animals are fed three times a day, all that they will eat up clean, and that they are in blooming condition. They are not made to *squeeze* through the winter, but are *kept* as well as they can be.

To make the calculation still more exact, we will estimate the value of the manure made, and of the labor required. Basing the calculation upon J. B. Lawes' table showing the value of manure made by the consumption of different kinds of provender, given in the American Agricultural Annual for 1868, p. 32, adding one-quarter American prices, it is fair to estimate the value of the manure produced by my cut hay, oats, and corn-stalks, at $7.25 for each 2,000 pounds consumed, or $10.28 for 2,840 pounds. By the same computation the manure from 342 lbs. of wheat is worth $1.51;—hay and grain together, $11.79. Deducting from this $6 for the cost of feeding, carding, and stable attendance for four days, we have left $5.79 in our favor. This deducted from $24, leaves $18.21,—and it reduces the total outlay for feed to about 12 cents per day, or $3.60 per month.

The foregoing calculations are based on the use of an inferior quality of forage during a season of very low prices. I have no facts to prove what would be the effect of cutting and steaming when only good hay is used at a cost of $25 per ton. Probably the outlay would be greater, but I believe that the proportional saving from the extra preparation, would be quite as large as it now is. This, however, is an opinion only, and it needs proof to establish it.

Ogden Farm finds encouragement in the following passage in the Hon. George Geddes' Essay on Wheat Culture. "Undrained clay lands are never worn out, for the owner that lacks the energy to free them from stagnant water, never has force enough to exhaust their fertility by cropping. Manure on such land is nearly thrown away. Draining is the first thing to be done; next, thorough cultivation, then manure. Whoever reverses this order throws away his money and his labor."

This would be a good text for every farmer to keep constantly in mind. The *profit* of farming comes entirely from the *surplus* of production beyond the grand total of the cost of interest, labor, seed, manure, and wear and tear. These are nearly fixed quantities. They are at least as great, in the aggregate, with medium crops as with good ones. If 30 bushels of corn to the acre will barely return the outlay, 60 bushels may give a clear profit equal to the value of 30 bushels. There are thousands of farms in the country, whose soil contains enough of the elements of fertility to produce fair crops with the aid of ordinary manuring, (if only these elements were come-at-able,) but which, by reason of their soggy and unpleasant condition, would do less injury to their owners if they were hopelessly barren. In the spring and early summer they are moist and cold,—more like putty than like arable land;—in July and August they are baked to a crust; and when the fall rains come they revert again to their weeping state. Any effort to make good land of such a farm as this without draining, is simply an effort wasted. Neither labor nor manure can do much to drive away the demon of "bad-luck," by which every path of its owner is beset. I have scores of letters from the occupants of such farms,—and I have had for years. I began by advising this and that make-shift, where it was claimed that the expense of draining could not be borne, but I have finally learned to say, point-blank, to any man who is trying to make his way on this kind of a farm: "Either drain it or give it up! You can make more money by working at day's work, on good land, than by fighting year in and year out, against the established laws of Nature. If you can't do better, sell off your stock,—and if necessary, work for a neighbor enough of the time to earn your bare living. Spend the rest of your time and all the money you can raise in draining the *best* field you have got. Don't imagine that your case is to be an exception, but accept the fact, now, that you *can't afford* to farm wet land—either own up that you are only fit for a day laborer, or buckle to and make your land worth cultivating."

There are two great obstacles to the advancement of underdraining, viz: One is, the idea that land which suffers from *drought* does not need draining, when the fact is that land often suffers from drought just *because* it needs draining;—take out the water and let in the air, so that the soil can be put in proper tilth, and it will be able to withstand drought. The other is, the not unnatural notion that the first land to be drained is that which is now the wettest. In my judgment the improvement should be first applied to those fields which are just dry enough to be considered arable, but which, two years out of three, disappoint the farmer's hopes and produce barely enough to repay the cost of cultivation. If such land as this is drained it will pay a profit. If a back swamp lot is drained it may be years before it will do more than pay the expenses of its management. Begin with the very best land that needs draining at all, and *make it produce a profit*, and then take the next best and bring that to a profitable state, and so on until the back swamp comes in its turn. What we want is not so much large crops as

profitable crops. A hundred dollars worth of corn that has *cost* a hundred dollars had better not have been grown. It don't pay to work over large areas for meagre produce. Pile on the steam!—Crowd the production to the most remunerative point!—and *then* extend your operations to the next best field and make that pay a round profit. This is the soundest principle of good farming and in carrying it out we shall have no more efficient aid than is rendered by thorough draining on the best lands that need draining. When this is accepted as the correct principle, we shall see draining extending in all directions. So long as the chief effect of draining is to convert innocent waste lands into fields for unprofitable work, its progress will be but halting, and farmers will continue to cry out against its great cost.—Cost? Why, suppose it costs as much to drain an acre of land as to buy an adjoining acre. This is no argument against it. The one acre, *drained*, would pay a handsome profit—the two acres undrained would pay no profit at all, and had better be left to grow wood. What is wanted, as the foundation of the best improvement, is a conviction in the minds of the farming public that it is better to have good farms than to have large farms. That point being gained, all the rest will come as a matter of course. Let us confine ourselves to such areas as will give us the most money for our farming, and leave the rest of the land to take care of itself.

If I were disposed to modify Mr. Geddes' statement it would be by advising that, after draining, manure and labor go together. In fact, if the land is in grass I would prefer to follow the draining with a liberal winter top-dressing of manure and so stimulate the largest possible growth of grass and roots, in advance of plowing. This would give us something to start on, and the cultivation would be profitable from the start; while if the whole of the first year is to be spent in work, without manure to make crops, both time and money will be lost. Still, I am diffident about questioning the propriety of any statement of so good a farmer as Mr. Geddes has shown himself to be.

This question of labor reminds me of the admonition of the author of "Walks and Talks." He is great on the question of summer-fallowing. I have no doubt he is right so far as general practice is concerned. If land is foul and labor is scarce, it may pay to lose a year in order to gain condition; but I would be sorry to see my land accumulating a year's interest and the cost of a year's cultivation without trying to get my money back in some way;—and I think that Mr. Harris will agree that if the force can be commanded it is best to have the fallow a fallow-crop, rather than a naked surface. A thousand bushels of mangels to the acre will leave the land as clean as even he could desire, and they will be well worth having in the root cellar for early spring feeding.

Tim Bunker on Old Hats—Old Folks.

Mr. Editor: I was down to the city the other day, and I met one of your readers, and he wanted to know how much longer Uncle Jotham Sparrowgrass, Jake Frink, and the rest of the Hookertown people was going to live. He said they had been on the stage some time, and thought they must be getting rather infirm. I had to enlighten him as to the remarkable qualities of the Hookertown climate, and the healthful tendencies of farm life. He seemed to have got his notions of human life from the city, where a man reaches his prime at thirty-five, retires from business at forty with broken health, and is in his grave at fifty. We don't run the human machine in that style, out here, and I guess we get about as much out of life as the fastest man upon your sidewalks. Uncle Jotham has no more doubt that he is just in his prime, than he had thirty years ago when he lived over on the Island. If you should ask him what his age was, he would tell you about seventy. The fact is after a man gets to be sixty out here, he is of no particular age, like a horse in his teens, until he is past eighty, when he begins to brag that he has past four score and grows jealous of everybody that is older than himself:—Jotham's father is still living a hale old man, at the age of ninety, and is as likely to live ten years longer as Jotham himself. I know "Lying like a gravestone" has passed into a proverb, but gravestones are not apt to lie about people's ages, if they do about their virtues. If you go into the burying-ground of Mr. Spooner's meeting house you will find about one-third of all the folks lying there, seventy years and upward. People of eighty and ninety, are not uncommon, and now and then one reaches a hundred. Mr. Spooner preached a sermon a while ago, in which he said that one-third of all the people who had died in the parish for the last ten years, had reached the average age of eighty-two years. He keeps the dates and knows. This is not a very good region for doctors, but it is grand for folks who cultivate the soil.

I met Dea. Stokes on Hookertown street last week in his farm wagon, with an old hat on, seventeen years old. He had just come in with his Wednesday's pail of butter and a big willow basket full of eggs. I dont suppose he has failed to bring butter to market during the season on Wednesdays and Saturdays a dozen times in the last thirty years. It always comes in pound balls, nicely stamped, in a bright tin pail, and during the hottest weather it comes in ice so that it is easily handled. The Deacon is eighty years old, and if he is not as capable of doing business as he ever was, he has not found it out. His boys have all gone out from him long ago, and he runs the Stokes homestead, where his ancestors have lived for six generations, on his own account. He is not a very rich man, but he is vastly more independent on his two hundred-acre farm, than a multitude of city merchants, who have an income of twenty thousand a year. He is altogether the shabbiest part of his establishment, except on Sundays, when he comes to meeting close shaven, and tidily, if not fashionably dressed. The farm buildings are kept painted, for he has learned the economy of white-lead and oil upon clapboards and shingles. The tools, carts, and wagons are kept housed, for he believes in having everything in place. The family carriage is venerable but cleanly, and carries Madam Stokes and her maiden daughter to church with as much regularity as the Deacon himself. But on week-day occasions, the Deacon believes in plain doings, and comes to market in a dress that Madam Stokes criticises to very little purpose, for the Deacon is very sot in his notions. That hat was worn ten years as his Sunday best, and for the last seven years, has borne the brunt of the elements on all occasions when he wanted to be out of doors. There is a dim scattering of thin nap left in patches, but the whole frame-work of the hat is laid bare, and the hatter's art is no longer a mystery. Seth Twiggs came along as the Deacon and I were talking, puffing away at his dirty pipe as usual, and says he:

"Deacon, how long have you had that hat, if it is a fair question?"...."Waal let's see. It was the year my youngest boy Oliver was married, and that's seventeen year ago the 1st of May. I got it to go to the wedding."...."'Bout earnt its freedom hain't it?" inquired Seth...."I guess not," replied the Deacon. "It keeps off the rain and sunshine, dont it?"...."Yes."...."Would a new hat do any more?"...."Perhaps not," said Seth doubtingly...."Waal then, aint it just as good as a new hat?" inquired the Deacon...."But the looks of the thing?" insinuated Seth.

"Waal folks must pay for looks that want 'em. I dont have the looking to do. Ye see, neighbor Twiggs, it makes all the difference in the world whether a man pays for what he wants himself, or for what his neighbors want him to have. The main pint about a hat is to keep off rain and sunshine, and when one has done that for seventeen year, you come to have considerable faith, that it will do it just one year longer. If I thought, getting a new hat every spring would make me any better man, if it would make my work any more profitable, or benefit my neighbors in any way, I should sartinly get one. But I dont see it in that light. Have you ever ciphered on the hat question?"

"No I hain't," said Seth. "What on't?"

"There is a deal of philosophy in it. You see a hat every year would cost, at six dollars a piece, $102, and the interest two-thirds as much more, call it $170, spent for an article that dont promote a man's comfort, or add to a man's respectability. My health is just as good as if I had bought a new hat every quarter, and my bank account is a great deal better. For you see, Seth, if a man begins right with his head, he comes out all right at the foot. Savin' on hats means savin' on everything else. And you see if a man keeps puttin' in to the bank more than he takes out every year, he is pretty sartin' to have somethin' ahead when he gets past labor."

The Deacon drove off leaving Seth very much hefog'd in wreaths of smoke.

Deacon Stokes carries his joke on old hats a little too far, I guess; but there is a good deal of sense in what he says about saving in small things and in being a slave to the opinion of your neighbors. But the Deacon's style of saving, and spending will never do much for our farming interests. He has run the Stokes farm very much as his fathers did before him, but he has not made it more productive. Indeed, it has fallen off very much,—will not carry the stock it would twenty years ago. We want to learn, what the Deacon never has learned—how to spend judiciously as well as to save; how to invest capital in the soil, and make it pay ten per cent. It is not much of a knack to run to the savings-bank with every ten dollars that is made from the sale of crops. Everybody knows that the managers of savings-banks are careful men, and will return your capital with interest. It requires some brain, as well as muscular power, to put capital freely into the bank of earth, and make it enrich the soil, while it enriches you. This is what every good farmer ought to do, and leave the material world, as well as the moral, better for his having lived in it. Old hats generally mean, old clothes, poor fare, a starving soil, and a starved mind. Young America abhors this water-gruel style of living and we must have such husbandry as will give us roast beef for dinner, and a new hat every year, or our sons will follow the Stokeses and emigrate.

Hookertown, Conn., April, 15, 1870 Yours to Command, Timothy Bunker, Esq.

Our Gray Rabbit.—(*Lepus sylvaticus.*)

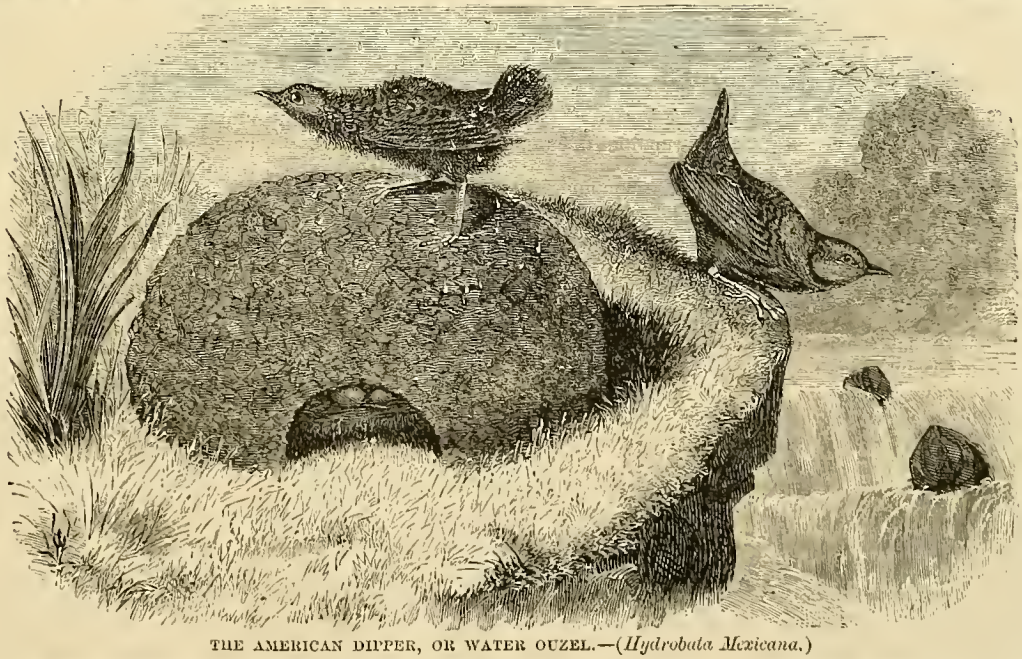
This little animal so closely resembles its consin, the rabbit of Europe (*Lepus cuniculus*), that it passes by its name in this country. Our rabbit is, however, very distinct, particularly in its habits. It does not burrow like its congener, which is the parent of our tame rabbits, but occasionally takes refuge in deserted or occupied burrows, thus often falling a prey to foxes and perhaps other carnivorous animals. The rabbit is about 16 inches long to the tail; it is larger at the West than at the East or South. It is something over two feet long from the nose to the tips of the hind feet, when stretched out. The head is roundish and the ears short. The fur is soft and fine; the skin is rather thin and delicate; the color dark gray, tinted with yellowish-brown above, changing into gray and ash-color upon the sides and rump, and white upon the belly. The tail is very short, dark above and white below. It is very timid, but not suspicious; is easily trapped or shot from its "form," the hollow where it habitually sits, or, started by dogs, and shot upon the jump. The flesh is delicate and good eating, but not particularly rich or "gamey." The rabbit multiplies with such astonishing rapidity that notwithstanding its many enemies it often increases so in numbers as to do farmers, nurserymen and gardeners, great damage. The worst thing it does is to gnaw the bark of young fruit trees near the ground, often girdling them entirely. This is usually done in winter when a lack of other food occurs; and the remedies are to encase the trees with birch bark, sheathing felt, or tarred paper, or to put some offensive substance upon the bark of the tree; sprinkling it with blood is found to prevent their attacks; and it is said that a mixture of assafœtida and soap will have the same effect. The food of this and its related species is exclusively vegetable. Sweet fruit they are very fond of, and box traps are usually baited with sweet apples. Clover and other sweet grasses, cabbages and turnips, grain of all sorts, and many garden vegetables, are their food; their shyness, acute sense of hearing and sight, their instintive tendency to remain still until discovered, and their rapid flight when once started, are their means of defence. So far as we know they never take the offensive except in their occasional fights with one another, or with other species of rabbits or hares, to which they manifest strong repugnance.

THE GRAY RABBIT.—(*Lepus sylvaticus.*)

The American Dipper, or Water Ouzel.

(*Hydrobata Mexicana.*)

The American Dipper is found along the Rocky Mountains, from British America to Mexico. It belongs to the same sub-family as the Thrushes, the Bluebird, and the common Robin, and resembles them in many points of structure, though in habits it is widely different. The bird, the general form of which is shown in the engraving, is lead-colored above, paler beneath, with the head and neck of a clove color, or sooty brown. The Dipper is remarkable for seeking its food under water; it wades or dives into the water, and remains beneath the surface for a considerable time. There is a similar species found in the mountainous countries of Europe, the habits of which have been more closely watched than have those of ours. Observers there state that the bird progresses beneath the water by clinging to the stones at the bottom, by means of its long curved claws, and by the use of its short wings. Its food is mussels and other fresh water mollusks. The European species has the popular reputation of going beneath the water for the purpose of feeding upon the salmon spawn, and is hence regarded as an enemy by the fishermen. An examination of the stomach of the bird has shown no foundation for this belief. The song of the European bird is very powerful and pleasing, but we do not find that observers have noted the song of our species. The nest of the European species is a curiously constructed dome, often placed behind a sheet of falling water or in some locality where it could be found only with great difficulty. The nest of the American Dipper, though it has been diligently sought for, has remained unknown to ornithologists until the past summer, when it was discovered by the naturalists of the U. S. Geological Survey of Colorado and New Mexico. Mr. Henry W. Elliott, of Washington, D. C., who furnishes the sketch for the engraving, says: "While we were in camp near Berthoud's Pass, a member of the party was fortunate enough to discover one of these nests, and to secure it and its builders. I was with him, and made the accompanying sketch. The nest is now in the Smithsonian Museum. It was placed on a rocky shelf mossed and grassed over, just about four or five feet above the stream; it was built of layers of moss, so laid one over the other, as to give it the shape of the crown to an ordinary 'Derby' hat. The moss was kept fresh and growing, from a habit which the bird had of shaking the water over it from its plumage before going in on to the eggs. The eggs were four in number, and of a pale white."



THE AMERICAN DIPPER, OR WATER OUZEL.—(*Hydrobata Mexicana.*)

LARGE ONIONS.—A writer upon onion culture in England says the best way to get large onions, is to tramp and roll beds firmly; the seed is then to be sown on the compact surface and covered with a rich compost the usual depth.

Walks and Talks on the Farm—No. 77.

"How Crops Feed," is certainly a very remarkable book, and the young farmers of America owe Prof. Johnson the profoundest gratitude for his arduous labors in presenting to them in a convenient form all the known facts connected with this intricate subject. We have a concise account of all the important experiments recently made by the German and French investigators, and when we have carefully studied this book we may feel sure that we know all that is known at the present time in regard to the nutrition of agricultural plants.

Prof. Johnson promises us another work on "Cultivation; or the Improvement of the Soil and the Crop by Tillage and Manure." His two works, "How Crops Grow," and "How Crops Feed," contain the *principles* which he will elucidate and apply to practical farming in his next volume. We shall look forward to it with the greatest interest. We know of no man better qualified for the task. Himself a farmer's son, with great practical common sense, and a thorough acquaintance with agricultural literature, he understands precisely what we wish to know, and his accurate scientific learning, united with great caution, and a profound love of truth, will enable him to throw light on many of the questions which none of us at present are able to answer—such, for instance, as: Why gypsum is usually much more beneficial as a manure for clover and Indian corn, than for wheat and timothy? Why clover and the root-crops can get more nitrogen from the soil and the atmosphere, than wheat, barley, and oats? Why thorough tillage increases the productiveness of some land and not of others? Why manure does very little good on land that needs draining? and why such land, *after draining*, is more productive than land that never needed draining? In the present book we get a glimpse of his ideas on these subjects. He gives us the scientific facts, but we want them applied to practical farming so that we can more fully understand their meaning.

On my farm—and it is so on hundreds of thousands of other farms in the United States—the three leading objects are (1) to get the land drained, (2) to make it clean and mellow, and (3) to get available nitrogen for the cereal crops. After the first two objects are accomplished, the measure of productiveness will be determined by the amount of available nitrogen in the soil. How to get available nitrogen, therefore, is my chief and ultimate object in all the operations on the farm. And it is here that science can help me. I know how to get nitrogen, but I want to get it in the cheapest way, and then to be sure that I do not waste it. It would seem from the facts presented by Prof. Johnson, that there is much more danger of the loss of nitrogen than I had supposed.

There is one fact fully established by experiment and experience—that 100 lbs. of available nitrogen per acre, applied in manure, will generally give us a greatly increased yield of grain. I should expect on my farm that on land which without manure, would give me 15 bushels of wheat per acre, such a dressing of manure would give me 35 or 40 bushels. So much for the importance of 100 lbs. of available nitrogen per acre.

Now, I have 100 acres of low, mucky land, bordering on the creek that probably contains, in the depth of one foot, fifteen or twenty thousand lbs. of nitrogen per acre. As long as the land is surcharged with water this nitrogen lies dormant. But drain it and let in the air, and the oxygen decomposes the organic matter, and ammonia and nitric acid are produced. In other words we get *available* nitrogen, and the land becomes capable of producing large crops of corn and grass. And the crops obtained from this low, rich land, will make manure for the poorer upland portions of the farm. This is not new, though it cannot be too often repeated. What is new to me is this:

A soil was analyzed and found to contain to the depth of one foot, at the end of April, 4,652 lbs. of nitrogen per acre. Of this amount, 63 lbs. were in an available condition. A plot of this land, plowed and then allowed to lie vacant, contained of available nitrogen, June 12, 50 lbs. per acre; June 30, 108 lbs.; July 22, 35 lbs.; August 13, 56 lbs., and Sept. 9, only 19 lbs. per acre. It would seem from this and other facts that when land lies fallow there is a large amount of available nitrogen washed out from the soil. And if we place confidence in these results we must conclude that there is a great loss in fallowing land. This is contrary to what I have hitherto believed. But these facts are at any rate worthy of consideration. For my own part I have not much confidence in the ability of a chemist to determine the amount of such small quantities of nitrogen in a soil. In fact, Prof. Johnson himself states that in determining the total amount of nitrogen in an acre of soil, we may attribute a variation of 200 or 300 lbs. to the unavoidable inexactness of the analysis.

There seems to be no reason to doubt that nitric acid is formed from the organic matter in the soil, in considerable quantity. This process of nitrification takes place most rapidly in hot weather, and when the soil is moist. Stirring the soil, by making it loose and porous, and letting in the air, also favors nitrification. Gypsum may also assist in this important process by furnishing oxygen to the decomposing organic matter in the soil. Leaving the question of summer-fallowing in abeyance, one thing is certain: we cannot go wrong in cultivating the soil thoroughly *while the crops are growing*. Our crops certainly need available nitrogen. And it seems equally certain that in soils containing organic matter thorough cultivation will favor the formation of ammonia and nitric acid.

The Deacon and I have a standing quarrel as to the best way of cultivating corn. He prefers to take an old sod, break it up deep with a jointer plow and three horses, harrow at first lengthwise of the furrows, and then diagonally across the furrows. The latter, he thinks an exceedingly important point. The harrows do not pull up the furrows, as they would if drawn directly across them, and yet they break down the soil nearly as well, and leave two or three inches of nice, mellow soil to plant the corn in. If needed, he rolls the land, but this diagonal harrowing is always the last thing before planting. He then marks out the land, 3½ feet apart each way, and drops from four to five kernels in the hill, and is careful to get mellow soil to cover them with, and gives it an affectionate pat with the hoe. When the corn is three or four inches high, he treats each hill to a handful of a mixture of ashes, plaster, and droppings of the hen-house. He then runs the cultivator through the rows both ways, and goes twice in each row, keeping the outside tooth of the cultivator as near to the hill of corn as possible. The Deacon himself likes to take things easy, but his son finishes in this way about 2 acres of corn a day, which is equal to cultivating eight acres once in a row one way. The corn is then hoed, and I do not believe that I enjoy digging an underdrain, or watching the Cotswold lambs playing in the sun, any more than the Deacon does hoeing corn. His face, always a cheerful one, now fairly beams with delight as he runs his sharp, bright hoe round the hill, straightening the plants with his hand, and pulling up with the hoe a little fresh, mellow soil, to smother the weeds. Finally an inch or so of soil is pulled up around the hill and pressed smooth with the back of the hoe.

In two or three weeks the corn is again cultivated once or twice in the row, both ways, and is then hoed again, a little soil being pulled to the plants to smother the small weeds that cannot be reached with the hoe. The pumpkin plants are also treated to a little fresh soil. This finishes the work.

Now, I have no objection to this method of managing the corn crop, provided the cultivator was used earlier and more frequently.

What the Deacon specially objects to in my plan of raising corn is *drilling in the seed*. He thinks that when the seed is carefully planted by hand it is equal to a hoeing. There is probably some truth in this idea. But our seasons are so short and the weather at planting time so precarious, that it seems to me better to plant the corn as soon as the land is plowed, harrowed, etc., without waiting, as must be done when planted in hills, until the whole field is finished. The better plan is to top-dress a clover sod with well-rotted manure in the fall, and let the clover grow until the weather is warm enough to plant. By this time the clover will be six inches high, and it may either be fed off by sheep or turned under. Plow carefully and then harrow thoroughly. A Shares' harrow is much the best. Roll, if need be, and make the soil as mellow as possible. Then drill in the seed in rows 3½ feet apart and let the kernels be 6 or 8 inches apart in the rows; or let the drill drop three kernels in a hill, 18 or 20 inches apart. This latter is the plan I adopt. I cannot say which is best. We mark out the rows before drilling, and try to make the rows as straight as possible. This is very important. Then go over the field with a broadcast plaster sower, and sow two or three bushels of plaster per acre. Just as soon as the rows can be distinguished, start the cultivator, going once in a row at first, and twice in a row the next time, running the cultivator teeth as near to the plants as can be done without smothering them. Then go over the field with the hoe immediately after the cultivator, stopping to do nothing but cut out the weeds, and to straighten up any of the plants that may have fallen over. Keep a cultivator going between the rows as often as once a week for the first six weeks and occasionally afterwards, whenever the surface of the soil gets baked, or would bake if not cultivated. Perhaps it will be necessary to go over the field again with the hoes. I find nothing so good for *the land* as to cultivate and hoe the corn during hot weather in August. It kills every weed. And I do not think it injures the corn, though the Deacon and many other sensible and experienced farmers think it does. If the land was perfectly clear I would not do it.

A farmer in Pennsylvania writes me: "I have a flock of Merino sheep, but I propose to dispose of all of them during the year. My intention then is to select common long-wooled ewes and cross with a thorough-bred Cotswold ram—not with one crossed with a Merino, in which the wool is bettered at the expense of the

carcass, but with a *pure blooded* Cotswold. Wool buyers ask for combing wool, and dressers for a large carcass." I am sorry to see good flocks of Merino sheep sacrificed. I believe those who weed out all the poor ones and keep none but the best—and keep them well—will, in the end, have no cause to regret it. Cotswold wool, whether from grades or thorough-breds, brings a higher price than Merino. I do not think it will be any lower as long as the present tariff continues, but I think Merino wool will be higher. And it would seem that we might retain our flocks of Merinos for future use, and in the meantime raise one or two crops of combing wool by using Cotswold, Lincoln, or Leicester rams with Merino ewes. The long-wooled rams must be *thorough-bred*. It is folly to hope for success with any other. And the *less* thorough-bred the Merino ewes are the more will the lambs take after the ram. I would select large-framed, common, quarter or half-blood Merino ewes, feed them well all summer and autumn, and if it is intended to raise early lambs for the butcher, turn in a long-wooled or Southdown ram the last of September, or first of October. If you have good quarters there is no trouble about raising lambs during the coldest weather in winter. Such lambs ought to bring 18c. to 25c. a pound, live weight, in April or May. A Merino ewe, like an Alderney cow, will give very rich milk, and a good deal of it, for such a small animal, if *well fed* for three or four months before lambing, and three or four months afterwards. When two weeks old the lambs will begin to eat a little bran or fine middlings, and if furnished abundance of nutritive food, will grow with astonishing rapidity.

If it is not intended to sell the lambs early, they need not come before April. The ewes should be well fed during the winter. The grade lambs will be larger and require more food than if they were Merinos. This must be provided for by furnishing abundance of nutritious food for the ewes. I think there is nothing better than, say, one pound of bran and half a pound of beans, oats, or oil-cake per day; and this feed should be continued after the ewes are turned out to grass. We weighed one of our thorough-bred Cotswold lambs the day it was born and it weighed 12½ lbs. That day two weeks, it weighed 25 pounds. Now, it should be understood that when we use a thorough-bred Cotswold ram on common Merino ewes, we get lambs that have nearly all the qualities and characteristics of the Cotswold. And one of these is to grow rapidly. But no animal can grow unless it has food to grow with. Those who talk about improved breeds of animals requiring very little food, talk nonsense. It is true only in this sense: They have little offal, and are gentle and quiet, and *when they have attained their growth* they require less food than a restless animal. But when they are young and growing they require abundance of food. I have some Merino ewes that I put to a thorough-bred Cotswold. I expect lambs that at six months old, will weigh 90 lbs. Now, if I had used a Merino I should have had lambs that, with ordinary treatment, would require *three years* to attain this weight. The grade Cotswolds would grow at the rate of one-half a pound per day; the Merinos, assuming that we had 10 lbs. of wool from the two extra fleeces, would grow only at the rate of one and a half ounces per day. The Merinos eat but little more than enough food to sustain the vital functions, say, 2 lbs. of hay per day or its equivalent; the Cotswold grades eat, say, double the amount of food, or 4 lbs. per day, and being of a quiet disposition they probably require no more food to sustain the vital functions than the Merinos, and consequently the extra food is converted into growth. If 80 per cent of the food which a Merino eats is used to keep up the animal heat and support the vital functions, we have 20 lbs. of food out of the 100 lbs. that is available for the growth of the sheep. The Cotswold grades eat double the amount, say 200 lbs. instead of 100 lbs. Of this 200 lbs., 80 lbs. are required, as before, to sustain the vital functions. The result should be as follows:

	Merinos.	Cotswolds.
Total food consumed	100 lbs.	200 lbs.
Food required to sustain the vital functions	80 lbs.	80 lbs.
Food available for growth of animal.	20 lbs.	120 lbs.

So that, with double the food, the Cotswold grades would be capable of growing *six times* as rapidly as the Merinos.

But give the Cotswold grades no more food than the Merinos and I do not see how they can grow any faster, unless we are to assume that from being of a more quiet disposition they require much less food to sustain the vital functions. If they required 10 per cent less food for this purpose than the Merinos, they would on the same food, grow half as fast again. Thus:

	Merinos.	Cotswolds.
Total food consumed	100 lbs.	100 lbs.
Food required to sustain the vital functions	80 lbs.	70 lbs.
Food available for growth	20 lbs.	30 lbs.

But whether this is the case or not, the advantage of a liberal allowance of food is apparent. In raising Cotswold lambs from Merino ewes, therefore, the chief object should be to induce the ewes to give rich milk, and also to furnish the lambs all the nutritious food they will eat while suckling.

In the experiments at the Michigan Agricultural College, eight lambs from grade Merino ewes, and a thorough-bred Cotswold ram, weighed, when from 5½ to 6½ months old, 78½, 82½, 83½, 83½, 86, 87, 89½, and 97 lbs. each.

Six of these sheep sheared, June 6th, when about 13 months old, 12, 14¼, 13¼, 12¾, 12¾, and 10½ lbs. of wool each. The sheep were thoroughly tagged, but the fleeces were unwashed. Dr. Miles says: "The wool was of good quality, free from gum or dirt, and from the length of fibre, well adapted to the manufacture of delaines, or for combing purposes."

This wool, together with the wool from the Merino and grade Merino sheep, was sent to Boston, and the grade Cotswold wool brought 44 cents per lb., and the Merino 33 cents per lb., both unwashed.

There is, therefore, no reason to doubt our ability to raise combing wool for a year or two, and at the same time retain our present fine wool sheep. We shall get fine wool from the ewes and combing wool and good mutton from the lambs.

A young man who thought of studying law asked Daniel Webster if the profession was not overcrowded. "Yes," he replied, "but there is plenty of room up higher." And it is just so in regard to farming. In the production of poor butter the business is overcrowded, "but there is plenty of room up higher." Poor, common cows are plenty, but where can you buy a really good one? And so of sheep, and cattle. The markets are overrun with inferior animals that sell for less than half price, and are dear at that. And we see the same thing in the grain markets. Those who say there is "no money in farming," are more than half right. A poor farmer and a petty fogging lawyer find the business overcrowded, "but there is plenty of room up higher."

Sweet Potato Culture.

BY MR. B. WILLIAMS, WILLIAMS' FORD, N. J.

[Mr. Williams, who grows sweet potatoes largely, favors us with a very full account of his method of cultivation, from starting the sets to harvesting and storing the crop. It is now too late for his directions for starting the plants to be of any use. We give some timely extracts from the article, reserving his method of harvesting and keeping the crops until later.—EDS.]

With regard to plants, Mr. W. says: "I find sprouts 2 inches long, the best, i. e., 2 inches of white [below the soil of the bed], and 3 inches of green, making 5 inches in all. I plant 4 inches deep, and if cut off even with the ground by frost or cut-worms, they will still come.

"I grow sweet potatoes upon my lightest soil, which is moderately rich naturally, or made so with manure; on such soil I have two plans of field culture, both of which I will give: On soil that is a rich, sandy loam: In the month of April, I sprinkle broadcast over the ground sal-ammoniac and lime, two of the latter to one of the former, in powder, as you would plaster, but in less quantity. Then plow down, taking care not to sprinkle too far ahead of the plow. [In giving Mr. W's method, we must dissent from his sal-ammoniac and lime together, as an expense which cannot be warranted by the results. The lime decomposes the sal-ammoniac, and the ammonia is nearly or quite wasted.—EDS.] After having turned it under, I cover the whole ground with a light coat of plaster, and let it remain until the time I want to plant, which is about the 10th or 15th of May, when I prepare the ground by passing a cultivator over it; then take a plow and mark the ground three feet both ways, straight and true, which makes the hills three feet square—thus giving 4,840 hills to the acre. I have had them to yield a bushel from 20 hills, or 242 bushels of potatoes to the acre; which is not an uncommon yield, when they do well.

"I prepare a compost of horse, sheep, and short barn-yard manure, as soon in the spring as I can, for sweet potatoes require a rotted manure. This mixture after being thoroughly incorporated, is mixed with one-fourth of its bulk of green-sand marl. About a half shovelful of this compost is put where the rows cross each other, and a hill is made with the hoe a foot high, and run to a point. Put one plant in a hill. When the weeds begin to grow, which is about the middle of June, I run the cultivator through both ways. It cleans between the rows and the bottom of the hill thoroughly; I then follow with an iron tooth rake, having teeth about three inches long, to loosen the top of the hill around the plant; then with the hoes, scrape off the weeds on the remainder of the hill. In about three days I run the plow through both ways, follow after with the hoes, and hoe the hill up smooth. The plants by this time have started six or eight inches; in about two weeks, or the first week of July, the vines begin to cover the hill; I then go along with the hoe and lifting the vines with the hand, clean off all the weeds that may show themselves, and leave the hill and vines clean and smooth. In about two weeks, or August 1st, I carefully turn the vines, and plow and hoe, then replace the vines. About the middle of August, I go through again and pull the vines loose, to prevent their taking root. If this is well done, and all the weeds that show themselves are pulled out, they will want nothing more until digging time.

"Another plan of management is as follows:

On my lightest sandy soil I plow the ground shallow about the first week in May; then put on a good coat of equal parts of marl and leached ashes (the ashes I get at the soap factories), which is moderately fine, and spread evenly. Just before I want to plant, I prepare the ground by passing a harrow over it; then take a plow and strike parallel furrows three feet and a half apart. A well-rotted compost of horse, sheep, and barn-yard manure is put in the row and spread along evenly; after which two furrows are thrown upon it, and the plants set fifteen or twenty inches apart in the row. I am careful to prepare only as much ground as will be needed for the first setting, as the plants after being taken from the beds, delight in fresh soil. The earth must be fresh, or the plants will wither and die. After the plants have become well rooted, I run through with a cultivator and level the ground, after which they will begin to thrive finely; while the hot-beds are again ready to be thinned out. Then the plow and hoe are brought into requisition, and the field or patch kept thoroughly cleaned, carefully turning vines during plowing, and afterwards replacing them. I have cultivated sweet potatoes largely after this plan, and with good success; it is not so satisfactorily performed on soil which is a rich sandy loam, where weeds grow and are hard to keep down; I therefore practice both plans."

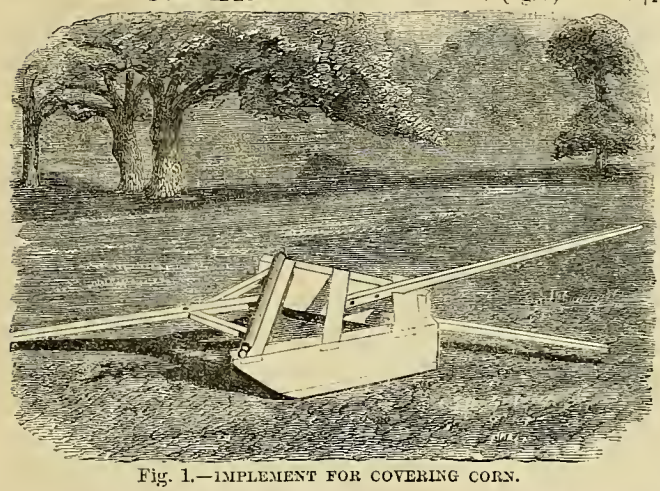


Fig. 1.—IMPLEMENT FOR COVERING CORN.

Planting Indian Corn.

It is very desirable to have corn so planted that it can be worked both ways, and every good farmer prides himself in having his rows straight and true. The distance the hills should be apart is determined by the size of the corn, and the strength of the soil; very small corn ought not to be in hills, but in continuous rows. Hills of ordinary field corn should stand from $3\frac{1}{2}$ to $4\frac{1}{2}$ feet apart each way, and it looks best to have the rows of hills cross exactly at right angles. So important is this, that we think it well to measure the angle at starting when large fields are marked out for corn, and where the fences or other boundaries are not exactly at right angles. This is done thus: establish one true base line, as *A-B*, fig. 2, for the first row upon one side; then measure 30 feet upon it, with a 50-foot tape-line, between two points, *c* and *d*; next take 40 feet upon the tape from the point *c*, and draw part of a circle where you suppose a line, meeting the line *A, B*, at *c*, at right angles, would pass; then move the end of the tape-line to the point *d* and take 50 feet upon it—the point *e*, on the 40-foot circle where the 50-foot circle will cross, establishes a line *c-e*, exactly at right angles to the base line. This is easy and takes less time to do than to tell.

The field is properly marked in two directions by a variety of implements. Three cultivator teeth, set in a joist to which shafts and handles are attached, makes a good marker. Two wheels on a 4-foot axle-tree, with a pole having a chain dragging upon the ground to mark where the wheel must run the next time, is also a convenient implement. If the furrows are made fully and uniformly two inches deep, the corn may be dropped and then covered on smooth land, with a harrow on its back, or with one without teeth, and loaded. We describe a good corn-marker, which makes deep marks, in another article. There are some pretty good corn droppers, but none exactly adapted to planting in rows both ways. The dropping is a rather tedious hand process. It may be somewhat lightened by having a small tin measure, which will hold five or six kernels. A little skill is required to throw the kernels scattering, but it is done rapidly. James Corlis, of Long Branch, N. J., uses a home-made implement for covering corn, of which he sends us a drawing. The runners or scrapers (fig. 1) are of $1\frac{1}{2}$-inch oak plank 10 inches high, and 33 inches long. These are set 34 inches apart in front, and 9 inches at the rear. They are champfered on the outside three-quarters of an inch, and protected by a strip of iron on the inside. There are three cross-pieces of inch stuff. A smoother, 4 feet long, is attached to one runner behind to remove surplus soil, stones, and bits of sod. This smoother is attached by carriage bolts, so as to be set higher or lower. A 6-foot stick for a handle is bolted to the implement as shown. Two horses are used, and it may be loaded or run simply by its own weight, according to the character of the soil. We think it might also be used for covering potatoes.

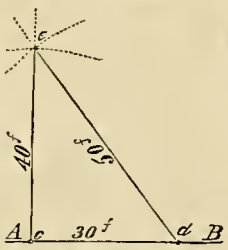


Fig. 2.—RIGHT ANGLE.

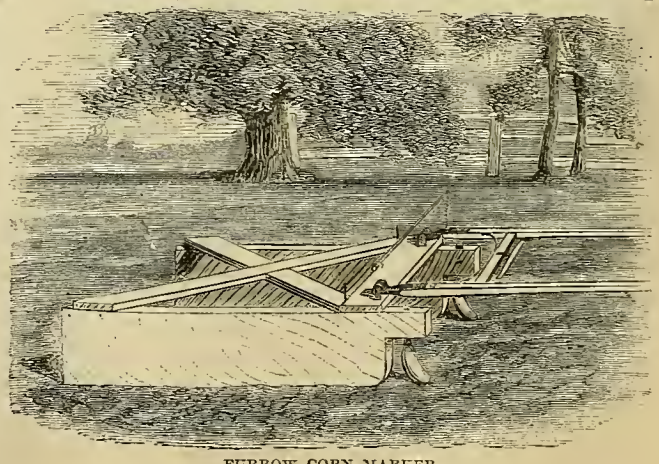
Crows in the Corn Field.

Crows are not the only birds that trouble corn after it is planted, and before it is strong enough to defy them, but they are so active, knowing, and almost insatiable, that we regard it as a mistaken policy to spare the few which may be killed, in order to secure complete protection to our corn fields from their ravages. Mr. C. H. Rue traps crows in a way which we tried last year with complete success. He says he goes upon the principle that a crow will go almost anywhere for an egg. If he cannot find a secluded spot which will answer his purpose, he makes a sort of little bower of brush stuck into the ground, leaving a narrow entrance. In this he makes a rough nest and puts in some hens eggs. The sticks must stand close and meet at the top so a crow cannot get in, except by the entrance; here a steel trap is set, fastened by a cord, covered with tissue paper, and this sprinkled over with earth. We practiced placing an egg for bait just where the crow, when he eats it, will see the others. The first crow that flies over will almost surely be the victim, and as soon as caught, will make the welkin ring with his cries. This will draw a crowd of sympathizers. The bird may be taken out of the trap and fastened to a stake with his wings tied together and left so half a day. He will keep up his cries and not another crow will visit that field that year, if it be not more than 10 or 12 acres in extent. The crow, in case no bones are broken, may then be liberated, if the farmer is tender-hearted, or used upon another field.

CROW TRAP.

A Furrowing Corn Marker.

Most of the corn markers in general use, make too shallow marks, necessitating some other mode of deepening. A sled marker having two or three runners, 8 inches high and 2 inches wide, with their forward ends sawed out so that a cultivator tooth may be set in each, accomplishes all that is desired. The teeth may be set to run two or two and a half inches deep, and the runners following



FURROW CORN MARKER.

pack the earth a little, and prevent the furrows filling up. Such a corn marker may be made in half an hour, and if fastened with strong

nails, is firm enough for use on smooth land. The accompanying engraving shows such a

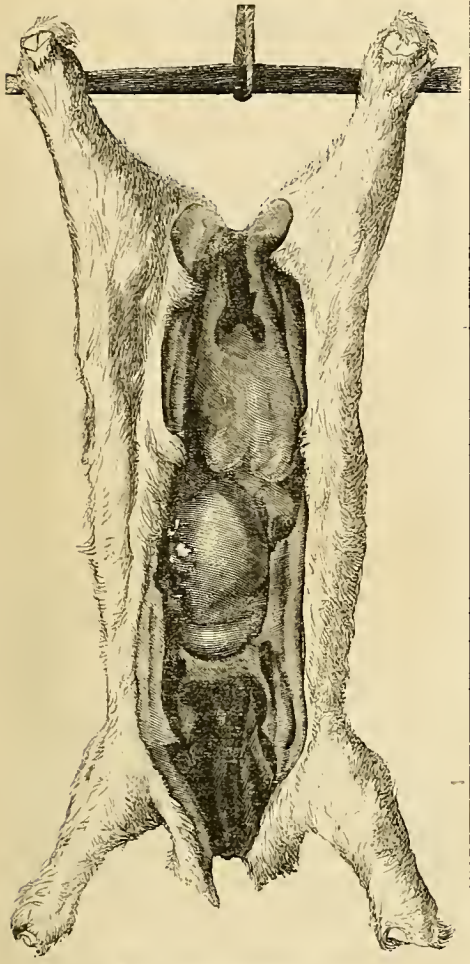


Fig. 1.—HOG-DRESSED VEAL.

marker. The rod and chain attached to the cross-piece is hinged on, and may be turned upon either side. The chain in dragging marks where the next furrow is to be made, or the track of the horse, whichever is preferred.

Veal—The Fatted Calf.

The sale of a well-fatted calf in the vicinity of good markets, usually brings in as much money as it costs to keep a cow through the winter. A good calf sells for the price of one or two tons of hay. The cow should pay for her keeping by her milk the rest of the year. A good many calves come to market on their feet. This is a poor way, for the veal is injured by the confined, heated, hungry and nervous condition the animals are often in. It is far better, and the producer realizes more, besides, for the veal to come to market "hog-dressed," as it is called. A veal so dressed is shown in fig. 1. The calf is killed by cutting its throat, and strung up by one hind leg to bleed. Then the head is skinned and removed; the feet, skinned to the hocks and knees, and removed. The lights and guts are taken out, leaving the heart, liver, kidneys, sweetbreads, etc., in place. After wiping out and hanging up until cool, it is ready for shipment. The skin of the head may be tied over the neck, that of the legs over the ends, and a single cord around the ribs closes the carcass together, and secures cleanliness. Sometimes the head and feet are taken off without skinning, as shown in our engraving, and frequently only a small opening is made in the belly, and all the viscera, except the kidneys, taken out. In this case a stick is inserted to hold the cut open and air the cavity. When veal is required for home consumption or for the neighborhood, the calf is skinned and dressed. After hanging until cold it is cut in two, as shown in figures 2 and 3. When cut up for use the principal divisions are those indicated in fig. 2. The cut dividing the quarters passes just back of the ribs. The hind-quarter is divided into the "Loin," *a*, and the "Leg," *b*, and each of these may be further cut up, or used entire as choice roasting pieces. From the fore-quarter the "Shoulder," *c*, is first removed, cutting beneath the shoulder-blade, and close to the ribs. Then the "Neck," *d*, *d*, and the "Breast," *e*, *e*, are separated, cutting through all the ribs. The shoulder forms an excellent roasting piece when the blade is taken out, and the end is nicely folded down and stuffed. Both the breast and neck are excellent for stews, cutlets, fricassee, etc. Veal cutlets are generally cut from the lower half of the leg, like steaks. This leaves the upper half to roast. The hock and tendinous portion near it, should always be removed in preparing the joint for roasting. The French and Germans take the cutlets from the fore-quarter.

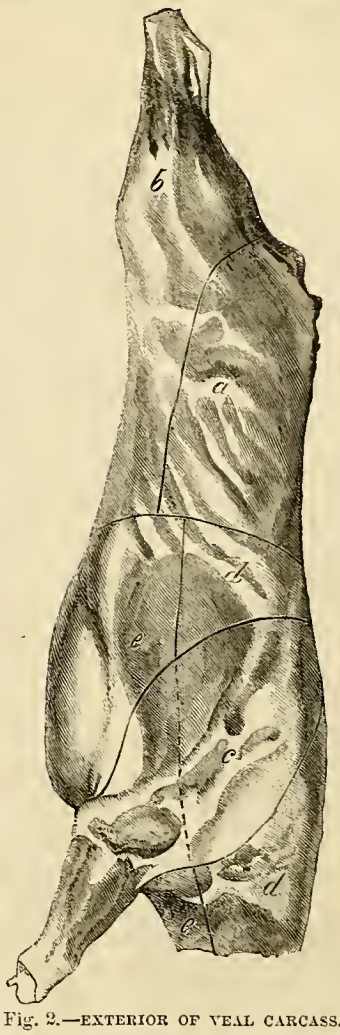


Fig. 2.—EXTERIOR OF VEAL CARCASS.

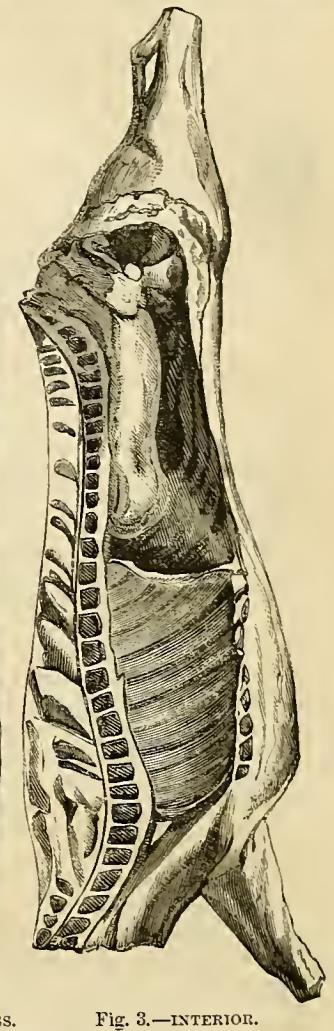


Fig. 3.—INTERIOR.

The Horse Bot and Bot-Fly.

There are not less than three insects, which, in their larva or grub state, are parasitic in the stomach of the horse. The grubs are known as Bots, and the flies, which are the mature propagating insects, are called Bot-flies or Gadflies. They vary in size and general appearance a good deal, in both the mature and grub states. The common one lays its eggs on the hairs of the legs and body, another about the throat, and a third upon the lips. The common Bot-fly is familiar to every one bred or living in the country. It is represented in fig. 1. This is called *Gasterophilus equi*, and is easily distinguished from its congeners by its spotted wings. The insect is tawny, its abdomen covered with woolly, shining hairs; the thorax is black and covered with yellow hairs, and the eyes very dark brown. The wings have several pale, smoky spots in the middle, and towards the tips, as represented. This is the female fly, and the one best known; when ready to deposit an egg she poises herself near the spot selected, as shown in figure 2, protrudes her ovipositer, and then with almost incredible swiftness she darts down and attaches an egg to a hair, as shown in fig. 3. The eggs are slender, and are, so to speak, cut off at the large end on a slant. They adhere very tightly to the hairs, and cannot be removed by ordinary grooming. Some, probably dead ones, remain until the coat is shed in the spring. The writer has practiced washing the parts of the animal on which the eggs are abundant, with strong carbolic soap, and greater numbers than he has ever before observed remain unhatched through the winter. Should this prove, as he suspects, a remedy for the Bots, it will be very gratifying, for so far as our own horses are concerned we are very ready to forego any benefit, real or imaginary, which Mr. Bracey Clark thought might result from their presence in the stomach.

Fig. 1.—BOT-FLY.

Fig. 2.—BOT-FLY.

Fig. 3.—BOT-FLY'S EGG.

Exactly how the eggs hatch, appears to be unknown, but it is certain that very lively little worms come out of them. We think it probable that they hatch and cause a tickling or itching of the skin, which makes the horse lick or gnaw the spot, when they adhere to the tongue or lips and are swallowed. It has also been stated that the licking caused the eggs to hatch, and at the same time removed the worms. Once in the stomach they soon make an attachment and suspend themselves by two hooks, seen in the engraving, fig. 4. This represents the grub or larva, in which condition the insect makes its growth. The little worm soon becomes robust and swollen, and remains much like the form shown, until it reaches the size indicated, never, so far as known, relaxing its hold upon the

Fig. 4.

walls of the stomach, which are somewhat pitted. It is of a tawny color, the body being composed of prominent rings, besides indistinct ones at the head and tail. The large rings are edged with a frill of short, weak spines. It reaches maturity in the spring, and as warm weather comes on it loses its hold, and is voided with the dung. Into this it burrows, penetrating the ground, and immediately assumes the *pupa* condition (fig. 5), contracts in size, and the outer surface becomes a hard shell, within which the final transformations take place. The pupa hatches out into the fly first described.


Fig. 5.

We have seen the stomachs of many horses said to have died from the bots, and have never seen evidence of inflammation or other diseased condition caused by them. A correspondent claims that, in a case which he communicates, bots were so numerous that they stopped up the "neck of the stomach." We can hardly credit it. It is often asserted that the walls of the stomach are *perforated*. That they are pitted, is true—we have never seen anything like perforation. Dr. Liautard, of the N. Y. College of Veterinary Surgeons, informs us that in all his practice he has never met with but one case of death attributable to bots. In this the horse's stomach was perforated, and the animal died of *peritonitis* (inflammation of the bowels). He attributes a case of sudden death reported by one of our correspondents, and by him supposed to be bots, to heart disease. There has never been any cure found for bots. There is no means of making them disengage their hold which will not loosen the horse's hold on life. Milk and molasses with a little ginger in it, is a favorite and excellent prescription. It does the bots no harm, but is good tonic food for the horse.

The Grass Pond Cranberry Bog.

Judging from the letters we receive, our readers are a good deal interested in the cultivation of cranberries. Fortunately, there is no immediate danger of an over-production of this crop. There is comparatively little land adapted to its growth, and the territory, where all the conditions of successful culture are present, is exceedingly limited. The people who have peat, sand, and water, in close proximity and capital enough to develop these resources, have a valuable property. In a trip to the cranberry plantation of Messrs. A. Sampson & I. Hodges, of Providence, R. I., last August, we noticed several points in which the treatment differed from that of the Cape Cod cultivators, which it will be well to add to the observations of Mr. Bunker. The Grass Pond plantation is located in Coventry, R. I., near Green Station, on the railroad. The whole purchase consists of about 700 acres, 400 of which is the basin of a shallow lake now drained. It is only six years ago that the first improvements were made, and these in a small way. Six hundred dollars were laid out in draining and sanding about ten acres. The wild cranberries are found mostly about the edges of the swamp, and the largest crop before the improvements was only 15 barrels. Three years after, 600 barrels were gathered, which sold for $7,200 at the depot. This decided the matter of investing capital in the business, and the improvements have gone on steadily ever since. The stream which runs through the swamp is large enough to carry a saw-mill, and is nearly a mile long. This has been straightened and widened into a canal, which can be used for boating the berries from the plantation to the curing house, thus saving the expense of teams. This canal is the main artery of drainage, and narrow ditches discharge their waters into it at intervals of about 200 feet. Since the drainage, and sanding, the plants have grown wonderfully and are extending themselves rapidly towards the canal, even where there has been no planting. The owners have not strictly followed the books, but have felt their way cautiously to the best methods for their peculiar location.

SANDING VINES UPON THE GRASS is not sound doctrine on Cape Cod, yet it works capitally here. The reason probably is, that the peat here is of quite recent formation, and the surface of the drained pond is too poor to favor the growth of weeds and bushes. At any rate, little else than a poor grass grows. The sand is spread upon the ice in the winter about 3 inches thick, and during the thaws of spring it is sifted down among the roots of the vines, without covering the tops. When the water is drawn off in the summer, the vines start with the greatest luxuriance, and berries generally set the first year upon vines that have heretofore been barren, or nearly so. By far the larger part of the 80 acres now in vines has been improved in this simple way. It costs about $50 to sand an acre 3 inches deep. Labor is about $2 a day, without board. The sand or gravel is found immediately upon the banks of the swamp. The edges of the bog are covered with brush and trees, and this land is treated in the Cape Cod way, that is, skinned, sanded, and planted with vines in the hills. There can be no doubt that sanding upon grass is the best here, upon those parts of the bog where it has been followed, and, under similar conditions, it would probably succeed quite as well elsewhere. The vines start so vigorously after the application of the sand, that they soon choke out the grass and take complete possession of the soil. We saw acres, treated in this way, covered with the most luxuriant growth of vines, and heavily loaded with fruit, say from two to three bushels to the square rod. Two rods were measured last year to ascertain just what the yield was. One gave a barrel, and the other lacked about 4 quarts of a barrel. The standard cranberry barrel of the Cape Cod Association, we believe, is 104 quarts. Capt. Small will probably shake his head at the luxuriance of the vines, and say that this is a bad feature, and skinning and sanding are needed to prevent it. But if the vines are all covered with fruit, the larger they are the better. Of course it remains to be seen how long 3 inches of sand will last. If more is needed, a second coating is easily applied, and it may prove more economical to apply light coatings at intervals, than to give 6 inches at once. The cultivation of cranberries is not so much a science that we can afford to be dogmatic.

A Trap for Musk-rats.

Almost every farmer, with reclaimed land, or with cranberry bogs, suffers from the depredations of musk-rats. Steel traps are good, but the most we can do with them, is to take one rat for each trap in a night, if he does not gnaw his leg off. A better trap is an old barrel. Sink it near the bank of the ditch, where there are evidences of the presence of the animals, to the level of the ground, and half fill it with water. Put in a couple of shingles, or light strips of board, to float on the water. Place sweet apples or carrots cut in small bits in the runs of the musk-rats, and toll them to the barrel. Put several pieces upon the floats, inside. The rats will jump in after their food, and will not be able to get out. Where they are plenty, several musk-rats may be taken in a night by this simple trap. it costs nothing but labor, can be visited at one's convenience, and there is plenty of room in it for a dozen or more of the vermin at once.

THE BARBERRY AS A HEDGE PLANT.—A few years ago we gave the experience of those who had employed the Barberry as a hedge plant and advised its trial; but finding there was such difficulty in obtaining seeds, we have not of late said much about it. This year we notice that the leading seedsmen offer Barberry seed in their catalogues, and those who wish to make a trial of it can readily do so. It is best to first thoroughly soak the seeds and plant as early as practicable, in order that the plants may obtain considerable size before hot weather comes.

Seeds and Seed Sowing.

Moisture, air and a proper degree of temperature are essential to the germination of seeds. The first act of the seed, after being placed in the ground, is to absorb water; the changes which accompany germination cannot take place without it. There must be a certain amount of moisture, but not too much, as this would exclude an equally important agent—air, without the pressure of which, germination cannot take place. The temperature varies with the kind of seed. Many garden seeds will germinate at 10 degrees above the freezing point, while others require still 10 degrees higher, before they will start at all. We do not, however, with tender plants, run the risk of the decay of the seeds by sowing them until the temperature of the ground becomes considerably higher than the lowest point at which they will germinate. Peas may be sown as soon as the frost is out of the ground, but Squashes and Melons require that the soil be above 60 degrees. These are what may be considered the conditions necessary to the germination of the seed—the chemical conditions. The act of germination—the bursting of the seed-coat and the liberation of the embryo plant—is accomplished by these, but this embryo plant has then to encounter mechanical obstacles before it can become fairly established and begin to sustain itself. It should be recollected that the whole growth of the plant, from the time it bursts the seed-coat until its first leaves appear above the surface, is from the nourishment contained within the seed itself. The young plant has to push in two directions, its root end is struggling to get downward while the opposite end is seeking the light. It is evident that not only the depth at which the seed is placed, but the character of the soil above it will have great influence upon the young plant. One great cause of failure with seeds, is too deep planting. Small seeds placed deep may germinate, but the young plant will be unable to reach the surface, the amount of nutriment in so small a seed not supplying sufficient material to allow the plant to grow large enough to reach so great a distance. The young plant perishes and the seedsman is blamed for furnishing poor seeds. The other extreme, sowing too shallow may occur, but we think seldom. The chief trouble here is, that the young plant being so near the surface is liable to become too dry, before the roots are ready to take up moisture. The character of the soil above the seeds is an important point. It will readily be understood that a germinating plant can make much easier progress through a light soil,

than through a heavy one, and it happens with some soils that the surface becomes so baked after a rain, that it is quite impossible for the seeds to overcome the mechanical difficulty. Our market gardeners, in order to be sure of a stand with seeds, the young plants of which are feeble, sow many times more than is necessary in order that the united efforts, so to speak, of a multitute of young plants may be able to throw off the covering. With delicate seeds sown in a seed-bed, the covering should be of a light nature. The soil should be largely of leaf mould. This being light, may allow the seeds to remain too dry, and to prevent this, it is to be packed down by pressure with a board, or patting with a spade after sowing. This packing may seem to be contrary to the statement that the covering should be light, but a soil consisting largely of decayed leaves, or decayed spent hops, is of an elastic character and will not, like a heavy soil, pack so closely as to present an obstacle to the young plants. Flower seeds are often very fine and need more care in regard to the character of the soil and its depth than coarser seeds. Very fine seeds need but a mere sifting of earth over them or no covering at all. With Lobelias and such minute seeds, we have had the best success by strewing them over the level surface of the earth in a pot and then covering the pot with a pane of glass. The object of the glass is to keep the surface from becoming dry. In gardens where the soil dries quickly, it is well to shade the spot where fine seeds are sown. According to our experience, the seed sold by our dealers, is generally good, and we believe that a large majority of the complaints of poor seed arises from burying the seeds too deeply and covering them with too heavy a soil.

Sweet Corn—Varieties and Culture.

Every now and then an article appears in an English journal giving an account of experiments with maize—which is with difficulty grown at all in England, though some cultivators have managed to raise ears for the table. They seem not to be aware that our sweet varieties are quite different from field corn, and a friend of ours sent last spring to Shirley Hibbard, a collection of our best varieties of sweet corn, thinking that so enthusiastic and competent a horticulturist, being put upon the right track, would astonish his friends with a novelty. Mr. H., in a recent letter to the Horticulturist, states his failure, but speaks of the corn as *pop corn!* We can understand the failure to grow the corn, but to call our delicious, sugary varieties "pop corn!" The American Minister should demand his passports at once. We wonder what proportion of our readers enjoy the luxury of sweet corn. Of course everybody has roasting ears, when the field corn will yield them, but as far as our observation goes, the use of sweet corn, cultivated solely for the table, is by no means general. The varieties of sweet corn differ from the common kinds in the greater abundance of sugar; the grain, when ripe, is much shriveled and wrinkled, and of a peculiar horny texture. We have the impression that Roger Williams, in a work published about 1644, mentions that sweet corn was in use among the Indians, but have not the work at hand to confirm it. Many can recollect when there was but one kind of sweet corn, while now the catalogues enumerate some twenty, differing in stature, size of cob, sweetness, color, and earliness. As with common corn, it is easy, by the exercise of a little care, to fix any desirable peculiarity, and at the same time the best sorts will deteriorate if due attention be not given to selecting the seed. Sweet corn is found to be a profitable crop by those farmers who are near enough to large cities to enable them to take the corn to market. It is useful in a rotation, as the necessary cultivation cleans the land and puts it in excellent order for rye or wheat, while a large amount of fodder, more valuable than that from common corn, forms an important part of the returns. The earliest varieties are generally very small, both in the plant and in the ear. The Early Dwarf Sugar and the Early Narragansett, are both excellent for family use. A local New Jersey variety called Tom Thumb, is brought in large quantities to the New York market, and is the largest early variety that we have seen. Crosby's Extra Early Sugar is the variety grown for the Boston market, and, among a half dozen sorts that we grew last season, gave the best satisfaction of any.

Adams' Early, Bates' Extra Early, Early Burlington, and Forty Days, are all said to be good and early, but we have had no experience with them. Of intermediate sorts there are several: Early Eight-Rowed Sugar and Twelve-Rowed Sugar, are commended. Asylum, a variety sent out by the Dexter Asylum, at Providence, R. I., is one of the best. Olcott's Farmer's Club did not please us last year, but it is commended by so many good judges, that we think there must have been some mistake in the seed and shall try again. Red Cob Sweet has a red cob, and large sweet kernels. Mexican Sweet is black and does not look so well upon the table as the white kinds, but one upon tasting it, forgets all prejudices against color, and takes another ear. Mr. Gregory says of it: "The sweetest and tenderest for table uses of all the varieties I am acquainted with." and we quite agree with Mr. Gregory. For latest we have Trimble's Improved and Stowells' Evergreen, both excellent, the last named keeping in eating condition for a long time. All the varieties are not enumerated, but here are enough to enable one to make a selection. Were we restricted to one variety we should, with our present experience, take Crosby's Extra Early. Sweet corn should not be planted until the soil is well warmed, and then be sowed in drills 2½ feet apart for the small sorts, and 4 feet for the larger kinds, thinning to about a foot in the drill. The early dwarf kinds mature sooner if sown on light soil. For the later sorts the ground should be well manured. Compost from the hen-house will be found excellent to give a start. It should be well mixed in the drill before putting in the seed.

How Much Manure to a Cow?

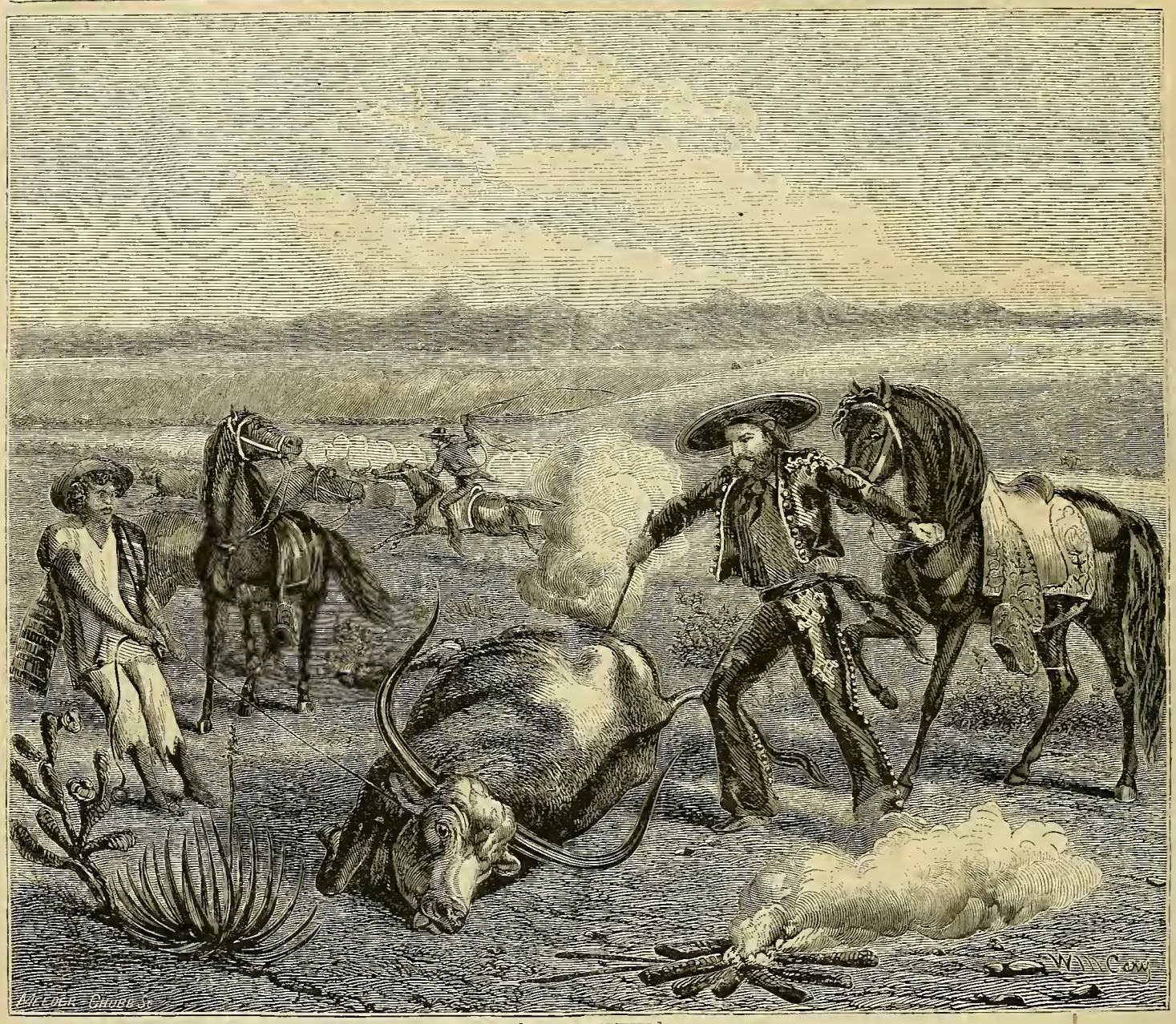
Carefully conducted experiments show that a cow of the average size will void about 60 lbs. of manure in a day, measuring about 1⅛ cubic feet, which is more than three cords, weighing over ten tons, for a year. It is the opinion of many good cultivators that three loads of peat or muck mixed with one load of cow-dung, make a compost quite as effective for top-dressing meadows as the cow-dung itself. If this were done, we should have twelve cords of good compost from the solid excrements of one cow. It is further estimated that the liquid manure is quite as valuable as the solid. If this were carefully saved by peat absorbents, kept under the stable, or in it, it would double the pile, or be equal to twenty-four cords of good compost. If this were spread upon two acres of run-down meadow, producing a ton of hay or less per acre, it would increase the crop probably to three tons to the acre the first year, and the effects of it would be seen in increased crops for five years longer. In those two acres it would make all the difference between profitable and unprofitable farming for five years. This compost, if sold in many good farming districts, would bring $4 per cord or $96. Used on the meadow it would produce much more in successive crops of hay. This estimate shows what may be done under favorable circumstances to increase the home supply of fertilizers. We have found that nothing pays better than labor applied to the compost heap.

The Field Culture of Sage.

BY JAMES J. H. GREGORY, MARBLEHEAD, MASS.

The variety of sage sought after by those who grow it on a large scale, is that known as the "Broad-leaf." An old grower will rarely purchase seed if the purity and freshness of it cannot be guaranteed from a personal knowledge of the raiser. Last season, when home-grown seed was quite scarce, an enterprising farmer in the town of Danvers, Mass., sold his entire crop of 100 lbs. to his neighbors at $10 per lb.; they could readily have bought imported seed at less than half that price. Imported seed usually has more light seed, which is an objection, in addition to those which spring from a probable lack of purity and freshness.

In raising sage, it should be borne in mind that the most valuable portion of the crop is the leaves; the poorer the land and the less the manure, the greater the proportion of leaves to stems. That the interests of both buyer and seller may be equally consulted, rather light soil is selected, which is in good condition, and three or four cords of some compost equal in strength to stable manure, and mechanically fine, is applied to the acre. A heavier dressing would produce a larger crop, but then a larger proportion of this would be stems, for the ranker the crop the coarser the stems. The seed may be planted as late as June, but the quality of the crop is also affected by the length of time it grows; that planted early, and therefore growing the entire season makes more and heavier wood, while that planted later makes proportionally more leaves, and therefore a better article. The ground must be very thoroughly worked, two plowings and harrowings are none too many, and then raked level and fine, as for a root crop; the seed is planted in rows, from 14 to 18 inches apart, and from three-quarters to an inch deep. About five pounds of seed are used for an acre. The seed come slowly: if the season is favorable, the plants will begin to show themselves in two weeks; but if the surface bakes, the best seed may fail to push through, for the seed itself comes up with the leaves, and when the ground bakes hard, it is apt to be broken off, and that is the end of the plant. Keep the crop clear of weeds, which will require considerable care in the earlier stages of growth, but later in the season it will so nearly cover the ground as to shade it, and thus keep it comparatively clean. In the early fall, cut the crop with a large knife or a smooth-edged sickle. Cure it by spreading in the shade in some airy building, on racks or laths, 8 or 10 inches apart, the laths being a couple of inches apart in the racks. These racks, which are excellent for drying all kinds of herbs, are made by using 1¼-inch boards as uprights which are from four to six inches wide; in these, cut notches 1½ inches wide and two or three deep, with a downward slant, securing them firmly to



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BRANDING CATTLE.—FROM A SKETCH BY E. JUMP.—*Drawn and Engraved for the American Agriculturist.*

the floor below and the beams above, having them in rows a little scant, 4 feet apart, and 5 or 6 feet apart in the row. Into the notches, slide slips of an inch or inch-and-quarter stuff, and lay on these laths at distances above given. When the season is closed, all can be readily removed and stored for future use. By using artificial heat, the sage may be dried in two or three days, but this does not make so good an article as that which dries in the course of two or three weeks; the cooler the weather the handsomer the appearance of the crop when dried. A mass of green sage which makes a cord by measure when trod in green, will weigh about 250 lbs. when dry. Two tons, when dry, are considered a good crop per acre. To market the crop, have strong tow bags measuring 7×3 feet, put a hoop in the mouth to keep it open, and secure firmly to a trap-door; fill in the sage and then tread it down as compactly as possible. A bag of these dimensions will hold 150 lbs. of dried sage. The price varies with different seasons, depending of course on the quantity grown, from 8 to 35 cents per lb.; averaging for the past twelve years in the Boston market, 12½ cents. Sage is a very reliable crop when once up, it being not so much affected by drouth as root crops. After a rain it recovers from its check, and starts a fresh growth immediately.

Branding Cattle.

In Mexico, as well as in parts of California and Texas—States that were formerly Spanish-American, cattle raising is an important branch of industry. The cattle are nearly wild, live in immense herds, and have an extensive range. The writer has traveled a whole day to cross the boundaries of a single *hacienda* in Northern Mexico. The proprietorship of cattle as well as horses is established by the presence of the brand of the owner upon the animals. Many are familiar with this method of marking horses and mules, as it is practised upon those belonging to the army. The brand may be the initials of the owner, but it is quite as often some arbitrary sign which, when adopted, is duly recorded in the books of the Alcalde—the town records. The presence of one's mark upon an animal is proof of ownership, and if he can show a brand duly recorded, corresponding with that on the animal, he can take possession of it in spite of any bills of sale that the present holder may show as evidence that he came legally by it. When an animal is sold, the seller puts on the *venta* brand, which is usually the same one reversed, and the purchaser then marks the animal with his own brand. Horses which have changed hands frequently, are singularly scarred, the results of many brandings. Cattle on the large estates are driven up once a year for branding, and the occasion is one of great festivity, as the neighbors come to enjoy the excitement and to lend their aid. It affords the young men a fine opportunity to show their skill in the use of the lasso. The animals are corralled, or driven into an inclosure and let out, a few at a time. The wild beasts set off at full speed and are pursued by the horsemen who capture them with the lasso. The chase is often a long and exciting one, and it often happens that the animal must be caught by both the horns and a hind foot before it is brought to terms. At the time of branding, those having marks which show that they belong to other parties, are separated from the others, and all that are without marks are branded by the use of the hot iron. On large estates the festival lasts for several days, and there is feasting, with music and dancing at night.

The Lungwort.—(*Pulmonaria officinalis.*)

The prevailing taste for plants with unnaturally variegated foliage, has had the good effect of bringing into notice several old-fashioned plants, the natural condition of which is to be speckled or striped. Among these is the Lungwort, so old as to be quite as rare as a new thing. We recently saw it in a florist's collection as *Pulmonaria cærulea variegata*, which, though very good as a name, could not make the plant anything but Lungwort. It is a very pretty, hardy perennial, which flourishes best in sandy soils, and in early spring gives clusters of lively purplish-blue flowers. Its leaves are spotted, as shown in the engraving, with a very pale green. It is a native of Europe, and has its representative in this country in the Virginia Lungwort, which we figured in July, 1867. The name *Pulmonaria*, as well as that of Lungwort, has reference to its former use in diseases of the lungs. It was a notion in olden times, that plants indicated by the shape of their parts or by markings, their uses as remedies. The leaves of this plant, from their spots, bearing some fancied resemblance to the lungs, were considered on this account to be a proper remedy to be used in diseases of those organs.

THE LUNGWORT—(*Pulmonaria officinalis.*)

Young Evergreens from the Woods.

Every spring great numbers of evergreens are offered by those who collect them from the woods, and they are sold, especially the small ones, at very low rates. Those who wish a large number of Arbor Vitæs and Hemlocks for hedges, are tempted by the low prices to buy these young trees; they are set for a hedge, and if a large portion die, as is apt to be the case, the seller is blamed. These seedling trees, which have grown in the shade of the forest, are pulled up, and have lost a share of their roots. If set in a single row for a hedge, they are exposed to the sun and wind in this very unnatural condition, and a large portion of them are likely to die. Trees of this kind should be planted and grown a year before they are permanently placed in the hedge. The Arbor Vitæs, if planted close together, will afford one another mutual shade and protection, and the Hemlocks should be placed closely, and a shelter of some kind be built over them. A platform, covered with evergreen boughs or with brush, should be supported above them; this, while it will give the needed shade, will allow a free circulation of air beneath it. With the best care some of the young trees will die, but those which survive after a season's protection may be planted in the hedge-row another year without fear of loss. A good share of the native evergreens offered by nurserymen is raised from young seedlings from the woods, which have grown a few years in the nursery.

Opium Culture.

In a previous article we gave the substance of a letter from a correspondent in Wisconsin. We have since had other details of Opium culture from him, and also a letter from Dr. E. Lewis, of Topeka, Kansas, who, in 1822, assisted his father who resided in York Co., Pa., in cultivating the poppy, and in gathering opium. This gentleman agrees with "B.," of Wisconsin, in thinking that opium can be profitably produced in this country. We do not wish to get up an Opium excitement, but as there has been much inquiry in regard to the subject, we present such experience as we are able to procure. As our correspondent "B.," is fuller in his details than Dr. L., we follow his article, noting where the two differ in their practice. The seeds of the poppy are very small, and with care in sowing, three or four ounces are sufficient for an acre, but much more is generally used, to be sure of a good stand. "B." says: "The seed will not bear burial. Take great pains in sowing, and cover very lightly, not more than $^1/_8$ to $^1/_4$ of an inch. If covered too deep, you will lose your labor. I sowed plenty of seed and thinned out, leaving the best plants, eating the others as greens, and feeding the pig. Do not be alarmed—they are very nice *when young*, full as good as beets or spinach. The time of sowing will vary in different localities, the point being, to have the capsules mature in the driest time—say from the last of July to the first of September. In Jefferson County, N. Y., I sowed from May 5th to May 20th. The cultivation should be as thorough as that of an onion or ruta-baga field." The Opium Poppy, *Papaver somniferum*, is the one from which the very double garden varieties have sprung. There are two marked varieties, the white, and black-seeded; the white being the most valuable for opium, while the black-seeded is preferred where the plant is cultivated for the purpose of expressing the oil from the seeds. We give an engraving of the Opium Poppy, showing the flower and capsule. The narcotic juice is developed only about flowering time, and our correspondent's remark that the young plant makes a good substitute for spinach, we can readily accept. We have a parallel case in the universally esteemed lettuce, which, when it runs up to flower, produces a milky juice, which, in its medicinal properties, has some resemblance to Opium. Dr. Lewis commenced scarifying the capsules as soon as the petals had fallen. He says: "After a sufficient number of poppy heads have parted with their petals, to justify the profitable commencement, the operator, armed with a sharp pocket knife, should take the head in his hand and give the stalk a twist of once and a fourth around, then apply the knife to the head at its largest circumference, and allow it to gradually untwist itself, thus making a circular

THE OPIUM POPPY—(*Papaver somniferum.*)

incision around the head or pericarp. This may be done once, or if a very large one, twice, to the same head. The milky juice will at once exude, and by the next morning will be ready to be scraped off with a somewhat duller knife and lodged in a common tin cup, belted around the operator by having a handkerchief through the handle." "B.," on the other hand, uses a knife for the purpose, which makes three incisions at once, and also a peculiar knife for collecting the product. He has promised us a set of these implements, and we hope to be able in due time to give engravings of them.

Trellises for Tomato Plants.

Those who grow tomatoes in the garden find that a support of some kind is essential not only

Fig. 1.—TOMATO TRELLIS.

to preserve a neat appearance but to produce the finest fruit. We have already published several trellises and now add another by Mr. E. N. Maxwell, of Louisville, Ky. If the trellis is made against a fence, pieces are got out of $1\frac{1}{4} \times 1\frac{1}{2}$-inch stuff, 6 inches longer than the hight of the fence. A small iron hook is attached to one end of each piece. Holes a trifle smaller than common telegraph wire are bored in the pieces, 6 inches apart, beginning at 4 inches from the hook end, and having the last hole about a foot from the opposite end. Cut telegraph wire into lengths of $3\frac{1}{2}$ inches, and bend them at $1\frac{1}{4}$ inch from one end at an angle a little more acute than a right-angle, and drive the pieces into the holes. The piece, when finished, is shown at *A*, fig. 2. For every two tomato plants there will be required one of these upright pieces, and one additional piece at the end of the row. The slats, which run horizontally, are ripped from an inch board eight feet long, one-quarter or three-eighths of an inch thick; exactly similar to a common lath but twice its length. Cut both ends of the slats slanting, as represented in fig. 1, which gives only one section of the trellis.

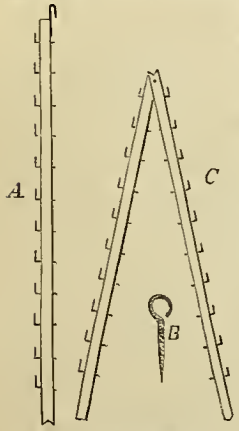


Fig. 2.—SUPPORTS.

Screw into the fence, near its top, on a horizontal line, iron eyes, *B*, fig. 2, measuring the distance between them accurately. Now fasten the hooks on the upper ends of the upright pieces, into these iron eyes, and let the lower ends slightly enter the ground fifteen inches out from the bottom of the fence. Place the slats in position, as seen in figure 1, and with a small hammer drive the iron wire supports tightly upon them, and your trellis is finished.

The tomato vines should be planted directly under the bottom slat, and four feet apart; this will give two vines between two uprights, and one upright between two vines.

As the vines grow up the trellis, weave their tops in and out between the slats, behind one slat, in front of the next, and so on alternately; this will support the vine without any tying. A few of the upper slats might be farther than 6 inches apart, for economy's sake, but it will not answer to have the lower ones any wider.

In the fall, after frost destroys the quality of the fruit, drive the iron fastenings loose by striking them behind the trellis, draw out the slats horizontally, letting the vines fall to the ground, unhook the upright pieces and your entire trellis may be placed under cover for the winter, ready to be put together again the following summer with but a very few minutes' work.

A trellis may be made without the support of a fence. Two upright pieces, *C*, fig. 2, seven feet long, are prepared with wires as before described, and fastened together at the top ends by a small iron bolt. The lower ends are spread three or four feet apart; these uprights are secured in position by being tied to cedar stakes, driven firmly into the ground; I prefer wire to twine for tying. These supports are placed at the same distance apart as those against a fence, and similar slats are used. Plant vines along both sides of the trellis four feet apart, as before.

My vines were planted in rich soil last summer, and grew eight feet high, trained in this way, covering the entire trellis, and were loaded with delicious fruit nearly to their tops.

The slats running east and west warped badly, but those on the trellis running north and south remained perfectly free from this defect.

Entrance Gates.

There is perhaps no one contrivance so generally in use that is so unsatisfactory as a gate, be it large or small. We find this the most frequently out of order, of any of the surround-

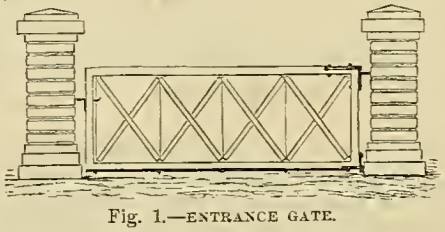


Fig. 1.—ENTRANCE GATE.

ings of a house, whether it be the gate leading to a modest cottage, or the one that closes the approach to an expensive mansion. The trouble about gates must be largely felt by our readers, if we can judge from the number of requests we have for plans of gates. We mentioned the matter to Mr. Geo. E. Woodward, the well-

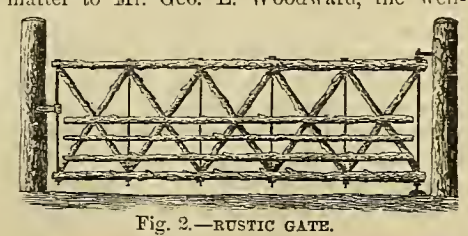


Fig. 2.—RUSTIC GATE.

known architect, and he referred us to a gate in his work upon Country Homes, as the one he had found in his experience to be the most easily built, and the most durable. With Mr. W.'s permission we copy some of his engravings to illustrate the principle, which is that upon which railroad bridges and span-roofs are built. Figure 1 shows the simplest form of a gate of

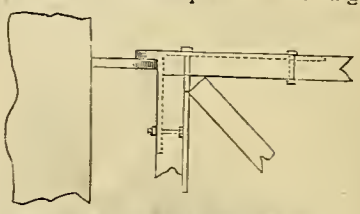


Fig. 3.—UPPER HINGE-CORNER.

this kind. Within a simple frame there are eight braces crossing each other, and five iron rods, the heads of which are let into the upper rail of the gate, and the lower ends are furnished with a screw and nut by means of which they may be fastened. The braces are halved together where they cross each other; they are not tenoned into the frames of the gate, but are

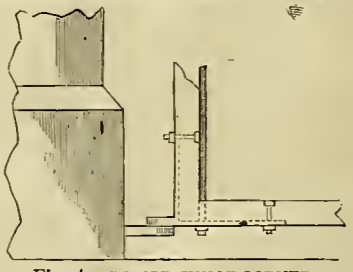


Fig. 4.—LOWER HINGE-CORNER.

held in position by tightening the nuts. The ends of the braces that bear against the rods have a groove in each to admit the end. The principle of construction here shown being adhered to, a gate of this kind may be ornamented in various ways, as illustrated in the work referred to. One of these is in the rustic gate, figure 2, where the whole is made of cedar sticks and iron rods. Three other rails, besides the upper and lower ones, are fastened to the braces by means of carriage bolts. In this gate the iron rod at one end is made to answer as a very simple and permanent hinge. It is prolonged at each end beyond the portion upon which the nut is screwed; the upper end moves in a strong iron eye screwed into the gate post, while the lower end is stepped into a stone placed to receive it. The hinges to the gate, in figure 1, are strong and very simple, and are shown more plainly in figures 3, 4, and 5. Figure 5 gives a perspective view of the hinge; figure 3 shows the upper hinge corner in section; the rod which holds this end of the gate passes through the upper plates of the hinge, which is further secured to the gate by means of carriage bolts. In figure 4 we have a section of the lower corner, where the iron rod passes through the lower plate of the hinge, and is there fastened by the nut. The hinge may, if desired, be countersunk, to present less iron work to view.

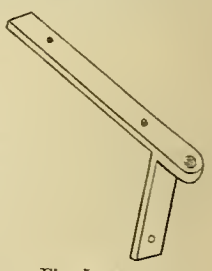


Fig. 5—HINGE.

Lettuce Growing in New York City.

BY PETER HENDERSON.

The passenger in the horse-cars going from 60th Street to Harlem, on New York Island, any day from June to October, may see little patches of vegetation of different shades of green, ranged in uniform and regular lines.

These are the "salad patches" cultivated mainly by German market gardeners; they range from two acres down to a quarter of an acre in area. It seems a wonder that the cultivation of such a small plot of earth should give the cultivator a living; but a living it does give, in nearly all cases, and some have quite a respectable surplus for a "rainy day." The manner of growing the lettuce for the first or early crop, is the same as that practised by the market gardeners of New Jersey or Long Island, namely, using plants from seed sown in fall, that have been wintered over under sashes, and planted out as early as the ground is fit to work, which in these warm nooks (in most cases at the base of rocky elevations), is often as early as the first week in March. In some particularly favored spots the lettuce is planted out in the first week of October, and if it remains unscathed during winter, comes in, in such fine condition for market in May, as to well repay the risk. The variety used for this purpose is the "Brown Dutch." In any section of the country where the thermometer never falls further than 10° above zero, lettuce sown the first week in September and planted out the first week of October in sheltered spots in dry soils, will be almost certain to "winter over," and give a crop in spring earlier than if treated by any other method. The wonder is that it is not more extensively done at such points as Charleston and Savannah, where, as far as I can judge, there is nothing to hinder it from being had in a marketable condition at any time, by ranging the sowings and plantings, from the middle of February to the middle of April. To return to the New York City growers; the varieties grown under glass and first planted out in spring, are usually the "Butter" and "Curled Silesia." As soon as the crop is planted out, sowings are made for a succession; this time, of "Curled India" and "Butter," the Silesia being unfitted for the warm weather at which this sowing would mature. The crop planted out in March matures by the end of May or first of June, and as soon as it is cut off, the ground is plowed or dug over, and the plants sown in March are planted. Another sowing is made for plants to succeed these again, and so on during the entire season, the rule being to sow seed at each time of planting. Four crops of lettuce are usually taken from June to October, or nearly a crop each month. The plants are set about a foot apart each way, and will average one cent per head, so that the four crops give a return of nearly $2,000 per acre. This seems like an immense return for an acre, but though the net profits are respectable, there are some serious disadvantages attending the cultivation. Few or none of these men are owners of the land, nor in hardly any instance have they a lease. They are tenants at will, and pay a yearly rental of, in some instances, $250 per acre. Many of your country readers may think that an extra cipher has been added to the amount, but they must recollect that the value of some of these "salad patches," as they are called, is $8,000 per city lot, or over $100,000 per acre, so that the paltry rental of $250 per acre hardly pays the *interest* of the amount of taxes. The following figures were given me by one of the best and largest growers, whose patch was two acres:

Rent	$ 400.
Manure	250.
Labor of 3 men for 6 months	750.
Horse keep and incidentals	450.
	$1,850.
Four crops lettuce, estimated at	$4,000.
Expenditures	1,850.
Annual profits for 2 acres	$2,150.

A pretty good profit, but deservedly earned, for to attain this result, the grower works early and late. It must not be supposed that 5 acres could be cultivated by one man with the above profit. The loss from inadequate hired labor, and the difficulties of selling large quantities of a quickly perishable crop, would be likely to make the attempt to increase largely the area cultivated a failure. Besides, lettuce is only used to a limited extent in the summer and fall months, and if grown in the quantities that it is in spring, could not be sold, yet in all large cities it is used more or less, at all seasons, and commands for limited quantities, usually a higher price than in spring, the season of its greatest consumption. No doubt the system of our New York City lettuce growers might be successfully and profitably followed in the neighborhood of many other cities and large towns.

Starting a Yellow Locust Plantation.

The first thing in starting a plantation of Locust trees is the selection of the site. Experience suggests a rather dry gravelly or sandy loam. The trees would grow more rapidly on bottom lands or black, rich soils, but they would also be much more liable to the attacks of their enemy, the borer. Some years ago, the Illinois Central Railroad Company made extensive plantations on the waste land bordering their track. The locusts grew finely for the first two or three years, and then the borers attacked them with great fierceness, and now hardly a vestige of the great plantations remains. On the light lands of Long and Shelter Islands, the tree thrives wonderfully well. Its favorite localities are steep hill-sides and well-drained soils. It would be likely to do well on many old fields and worn out pastures, which are now unprofitable for grass. An additional inducement to plant such fields is the fact, that the tree is a renovator of the soil and friendly to the growth of the grasses. We recently saw a plantation upon a light sandy soil, once nearly worthless, where there was grass enough to have made two tons to the acre.

The Treatment of the Seed and Seed-bed is a matter of great importance. The soil should be well prepared and made sufficiently rich with compost to grow good corn. Mark off the rows 3 feet apart and sow the seed, and cover them about the same depth as onion seed. The seed should be prepared by soaking in hot water. Pour 4 quarts of boiling water to a pound of seed, and let them stand in a warm room for twenty-four hours. If any of the seeds are not swollen, separate from the rest, and pour hot water upon them, and repeat the process of scalding and assorting until all the seeds are swelled. Keep the ground clean with cultivator and hoe the first year and subsequently; the seed will not all sprout the first year, but will keep coming for many years. Sprouts will start both from seed and from the roots for a dozen years or more. If the seed-bed or nursery is properly cared for, it will furnish any desired number of plants. A tree so easily propagated, and so valuable both for timber and as a renovator of the soil, ought to have the immediate attention of the owners of exhausted lands. There are thousands of acres in all the older States where this tree would flourish. If it did not pay dividends to the present owners, it would at least be a safe investment for their heirs. Timber is all the while growing scarcer, and the next generation must have posts for their fences, and treenails for their ships at whatever cost.

CONNECTICUT.

The Terraced Propagating Pot.

BY PETER HENDERSON.

A few weeks ago I received from Benjamin W. Putnam, of Jamaica Plains, Mass., five different styles of flower pots, which he calls "self-watering." Among the patterns sent there is only one of special value, the Terraced Propagating Pot. As represented in figure 1, it has a base about 12 inches in diameter, with three terraces of 2 or 3 inches wide, the top one being about 4 inches in diameter. In the center is a reservoir for holding the water, this widens at the base, as shown in the section, fig. 2. The water in the reservoir filters through the sides of the pot, keeping the sand on the terraces always saturated. Cuttings of the young shoots of the great majority of plants placed in the sand, will root, to a certainty, in from two to four weeks.

Fig. 1.—TERRACE POT.

To such as have tried the "saucer system" of propagation (described in February, 1864), the principle here will easily be understood, as it is only an ingenious modification of that, which has the advantage of doing away with the necessity of pouring water directly on the cuttings, as all that is needed to be done in this case is to keep the reservoir filled with water, and the sand will be kept in a uniform condition of moisture by filtration.

I know some practical gardeners may say that there is nothing new in this, as we have used the same principle, in a rough way, in propagating, for many years, by placing a smaller flower pot inside of a larger one, and keeping the inside one filled with water, and planting the cuttings in sand in the space between the pots. That was an awkward and clumsy contrivance compared with Mr. Putnam's design.

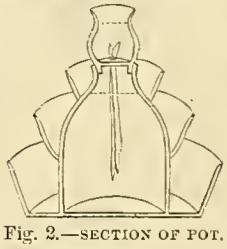


Fig. 2.—SECTION OF POT.

In the one received by us about the middle of February, we placed cuttings of Roses, Geraniums, Pelargoniums, Heliotropes, Fuchsias, Carnations, and Verbenas, filled the reservoir with water, and placed the pot exposed to the sun, in one of our green-houses where an average temperature of 70° is kept. In three weeks every cutting, without a single exception, was rooted, and the little propagating house, for so it may be called, had more attractions for our amateur visitors than any other thing in the establishment. It must not be supposed that the atmosphere of a green-house is necessary to propagate with the terrace pot, it will do just as well placed in the window of the dwelling-house, where there is plenty of light and the necessary heat; all that is needed to observe for success is that the cuttings used are the young green shoots, and that the reservoir is full of water, so that the sand is kept thoroughly moist.

Whenever the cuttings show roots, no matter how small they are, they should be taken from the propagating pot and placed in flower pots of two or three inches in diameter, and kept well watered and shaded from the sun for two or three days after potting. So convinced am I of the certainty of success from this mode of propagating that in cases of rare or valuable

cuttings I would use it in preference to our regular propagating beds, though of course it could not be applicable by florists on a large scale.

THE VARIEGATED GRASSY CALAMUS.—(*Acorus gramineus.*)

The Grassy Calamus.

Almost every one is acquainted with the Sweet Flag or Calamus of our swamps, and which is prized by many for the pungent aroma of its creeping root-stocks. The Grassy Calamus from China, is very much like a miniature reproduction of the one with which we are familiar. It has similar long and narrow, two-edged leaves. The flowers, as in the common one, are minute and densely crowded into a spike (or *spadix*) which issues from the edge of a flattened stem that is quite like the leaves in appearance. The species in its natural state has the leaves entirely green; but a striped variety has been introduced from Japan within a few years, and is now not rare. The engraving represents the plant somewhat under the real size, and shows the manner the clusters of leaves are given off. The clumps all have a tendency to assume a curved or cresent-like form. The plant is generally grown in greenhouses, and is a useful one to place in rustic baskets and vases, as it endures the dry atmosphere of the dwelling. It is, however, quite hardy, as we have had it in the open ground for several winters without any protection.

EXPERIENCE WITH A WILLOW HEDGE.—Mr. Geo. M. Chase, Freeborn, Minn., writes: "In the spring of 1868 I built a few rods of willow fence, which has succeeded so well, I think others should try it. First I dug a ditch 18 inches deep, and 1 foot wide at the bottom. Then I cut the willow into pieces 5 feet long, taking care not to wound them more than was necessary. They were placed in the ditch 4 inches apart, and nailed to a board 4 inches from the top, using clinch nails. The soil was thrown back and pressed gently against each piece. Digging a ditch to set the fence in, has two advantages: first it gives you a chance to build a straight fence out of material more or less crooked, and secondly it loosens the soil, giving the roots a better chance to start and furnish the nourishment now so much needed. It was quite dry for nearly three weeks after the fence was built, but I saved the life of nearly every piece by mulching with coarse manure. This makes a picket fence 3½ feet high, which nothing has ever attempted to pass, and it grows better every year. In this soil a man can dig the ditch, prepare his trees, and put up 5 rods per day. The necessity of resorting to some plan to secure cheap and durable fencing, is almost imperative in this sparsely timbered country. I ought to have said that the willow (White Holland is the kind I used) never sprouts from the roots, no matter how close you plow or how many roots you may cut off."

SILLS' HYBRID MELON.—Mr. Gregory, of Marblehead, Mass., exhibited this variety at Boston last fall. It is small, white, and netted. The flesh is of a deep salmon color, of fine texture, rich, sweet, and good flavored. Mr. G. thinks it too sweet to suit some tastes. The one we tested was certainly sweet enough.

LAYING OUT A VINEYARD OR ORCHARD.—Mr. W. W. Smith, of Napa Co., California, gives the following method of laying out a plot for planting with vines or trees which would seem to be easy of execution: "Set two flag stakes as if about to lay out the ground with a horse and plow. Then take a wheel-barrow and fasten a stake of the proper hight to the center of the box or bed, and just behind the wheel. Get the three stakes exactly in a line and start across the field, pushing the wheel-barrow before you and keeping your eyes steadily upon the stakes. After a little practice one can, in this way, strike out a row almost as 'straight as a line,' and the wheel makes a mark sufficiently plain. By running across in both directions, the intersections of the marks, or 'checks,' will indicate the proper stations for the vines or trees. By putting stakes in the 'cheeks' before commencing to dig the holes, a person can, with a little care, set his vineyard or orchard in perfectly straight rows."

VALLOTA PURPUREA.

An Easily Grown Bulb—The Vallota.

The Vallota is a plant so easily managed, and withal, so showy, that we wonder we so seldom see it employed as a garden ornament. There seems no reason why it should not be as common among the spring bulbs as the Gladiolus. Perhaps it is because the books put it down as a green-house plant that so few are to be found in gardens. Seeing some bulbs in the collection of B. K. Bliss & Son, we were reminded to say a word in behalf of the Vallota. It is from the Cape of Good Hope, and has been in cultivation for a century. Its leaves do not die down, as do those of many bulbs, hence, after the flowering season, it cannot be packed away like a Gladiolus, but must be kept at rest in earth, though dry. The leaves, which are nearly flat, spread in a fan-like manner, and are of a dark, rich green. The flower-stalk is a foot or 18 inches high, and bears in August a cluster of brilliant, scarlet lily-like flowers, of the shape shown in the engraving. The plant may be turned out in the open ground after frosts are over, and in autumn be taken up and potted, and kept in a green-house or dry cellar. The bulbs produce an abundance of offsets by means of which the plant may be readily multiplied. Recently, botanists have placed this in the genus Amaryllis, and it is found in some works as *Amaryllis speciosa.* It is, however, best known by the florists and dealers as *Vallota purpurea*—though *purpurea* is a misnomer, as the flowers are scarlet. At all events, Vallota will serve for the popular name.

THE HOUSEHOLD.

(☞ *For other Household Items, see "Basket" pages.*)

An Aquarium.

A properly managed aquarium is not only a pleasing household ornament, but it is capable of affording no small amount of instruction. Some years ago, when the aquarium was a new thing, we gave considerable space to the subject. The excitement soon subsided, but all interest in the matter has not died out, as we have several letters asking how to start and manage an aquarium. The aquarium is a vessel of water containing plants and animals, and is in fact a miniature lake. A globe or other vessel containing fish, the water in which is daily changed, is not an aquarium proper. In the aquarium there is plant life as well as animal life, and the main condition of success consists in keeping the plants and animals properly balanced. The plants as they grow in the water, give off oxygen, a proper amount of which is necessary to the life of the fish or other animals that may be there. Reciprocally the fish, etc., give off carbonic acid, which is needed for the growth of plants. Too many plants are only objectionable, as they diminish the room needed by the fish; but an overstocking with fish will soon prove fatal. The first thing to be considered is the vessel, or tank, as it is generally called. A very pleasing aquarium may be made by using a large glass jar, holding a gallon or more. Such jars as confectionary is kept in (fig. 1) answer well, and they are to be preferred without bands or hoops. Large glass covers, such as are used by confectioners to cover up cake, make a good tank. They have to be supported in an inverted position by means of a base, which has a hole for the reception of the knob upon the glass as in fig. 2. Vessels with curved surfaces have the objection that they distort the objects within when viewed through the sides. Regular tanks (fig. 3) are made with metallic bottom and frame with the sides formed of glass; these are sold by the manufacturers at prices varying from $6 to $20, according to size and finish. The flat, glass sides allow the interior to be distinctly seen. An aquarium may be made with a wooden frame, black walnut being the wood usually preferred. The glass is fastened in with a cement of rosin and beeswax applied hot. The bottom of the tank and all the parts of the wood-work that come in contact with the water should be covered with the same cement, spread on while hot. Four parts of rosin and one of beeswax, with a small proportion of tallow, are used for the cement. Enough tallow is used to give toughness to the cement, so that it will not break readily when cold. The quantity is best found by experiment, probably a fourth as much as there is of wax will answer. Those who do not care to procure a tank of the regular style, can find sufficient to interest and amuse them in an aquarium made in a jar. An inch or so of clean gravel from which all fine particles have been washed, is to be put into the bottom of the jar or tank, and then the vessel is nearly filled with river or rain-water. The plants are next in order, and it is a little difficult to indicate which are most desirable, as there are few that are known by common names. Almost any plant which naturally grows quite under water in ponds or slow streams, will answer. One of the best is the Tape-grass, or Eel-grass, figured in August last, and those who will take the trouble to search the ponds, will find a number of others well suited to the purpose. The plants, being washed clean, are made into convenient bunches, to the lower end of each of which a small stone is tied to sink it, and as many plants as are desirable are anchored in the tank. It is best to allow the aquarium to remain thus for several days, before any animals are added, exposed to the light, at a window that has the sun for a part of the day. For animals, very small fish, water newts, snails, mussels, and tadpoles, are the principal ones. If the vessel is quite small, care must be taken in introducing fish, as they consume oxygen much more rapidly than newts, snails and less active animals. We shall speak of the management of the aquarium in another article.

Fig. 1.—JAR.

Fig. 2.—GLASS COVER.

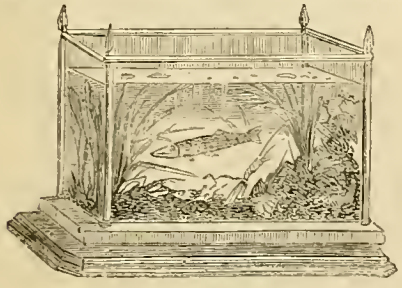


Fig. 3.—SQUARE TANK.

How I brought Water into the House.

I live in one of those farm houses built about fifty years ago, which are only remarkable for having no modern conveniences. No gas, no bells, no soft water, no sinks, no drains, no furnace. It is true, there *is* a sink; but I turn it out of doors every summer, preferring to have the refuse water wheeled away to having a cholera bog near the house, which stands on a level space, and the water cannot be easily carried away by surface drains.

Men do not always know that they suffer from sink drains and neglected ventilation, for they are abroad in the breezy fields and acquire a stock of hardy health, which does not succumb to malarial exhalations; but women, who are obliged by their duties to keep in the house, often breathe an atmosphere of sickening odor from sink and cellar, and drift into consumption, fever, or paralysis. A farmer's wife usually rises at about half-past four o'clock in the summer, and six in the winter. Therefore, at half-past two she has worked ten hours and has a *possibility* of feeling weary, and before she goes to her chamber for an hour's rest, she remembers that the water for the chambers is to be carried up. It is work that she will not, if she can avoid it, allow her daughters to do, as she knows by experience the strain on back and arms; so she toils painfully up the stairs with a bucket of water, knowing it must be brought wearily down again, wishing, perhaps, as I have done for years, that she *could* have water brought into her second story. After wishing for it many years, I decided that I could and would bring it in. Perhaps others will do better than I have, if they will plan instead of regretting. Our house formerly had no gutters at at the eaves, but a few years since it was slated and a gutter added with a conductor, which delivers the water to a hogshead at the side of our south door. Above that south door is a large window, which lights a closet or bathing-room. As the small room adjoining was deficient in ventilation (for none of our windows can be opened at the top), several years ago I broke out the upper right-hand pane of glass in the closet, knowing it would be so difficult to re-set it that I should have constant ventilation. Why not bring a water pipe from the gutter above through that open sash, as well as air from without? My plans were soon laid. I could place a barrel with faucet upon a high stand by the window, curtaining off a space that no fastidious taste be offended. I would have a water pipe introduced into the gutter about 18 inches long with one elbow, bringing the water near the window, indeed quite close to the open sash, and at the lower end of this pipe there should be a rim sufficiently large to allow me to attach a section of hose which could either deliver water into my barrel or into the hogshead below, as I might choose.

At the left-hand corner outside the window I attached 20 feet of hose to deliver the refuse water into a small reservoir on wheels, which will be daily wheeled away. The house being covered on the south side by a luxuriant Virginia Creeper, the hose passes behind the net-work of branches, and is therefore not conspicuous, and will not be seen at all in summer. I have no doubt there are many country houses which might have similar or better arrangements, if women will once think for themselves, instead of waiting for others to plan for them.

W.

An Unpatented Clothes-Horse.

Many of the contrivances to hold clothes while they are drying or airing, are patented. We give one invented by Mr. Chas. F. Diebert, Schuylkill Co., Pa., that is not patented, and which is so simple that it can be readily made. The engraving

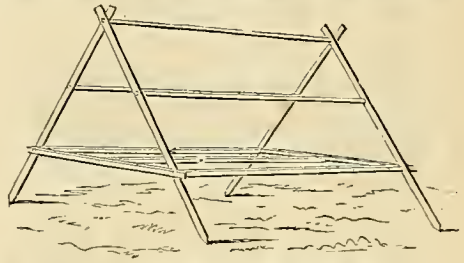


Fig. 1.—CLOTHES-HORSE EXTENDED.

shows a perspective view of the horse, which is 5 feet long and 4½ feet high. It requires in its construction neither nails nor screws, the whole being fastened together by wooden pins through the ends of the bars, which project through holes in the uprights. The bars are 1 inch square, but rounded at the ends which go through the uprights, which are ¾ inch by 2 inches. The end view is given in fig. 2; perpendicular dotted lines show the manner in which the clothes hang, and it will be seen that those upon one bar will not come in contact with those upon another. The cross-pieces at the ends are attached by one of their ends to one of the horizontal bars, and hook upon another bar by means of a notch near the opposite end. By unhooking the cross-pieces, as shown by the dotted lines, and removing the lower center bar, the horse can be folded up and occupy but a small space.

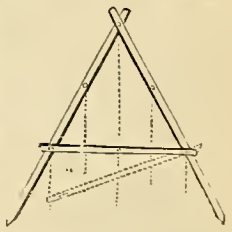


Fig. 2.—END VIEW.

Gardens, Flowers, and Children.

BY FAITH ROCHESTER.

I cannot imagine a country home without flowers. No crop on a farm "pays" better than a well-kept and properly used flower-garden. Of course I do not refer to dollars and cents, though, to be sure, everything which has a soothing or enlivening effect upon the spirits, and which tends to keep the body in health, contributes to our material prosperity—saving time, wages for hired labor, and doctor's bills.

Every mother needs a flower garden for herself and children. Rightly used, it is a great help in family government, in the same way that singing is an aid in the discipline of a school. The less of visible government anywhere the better. It is the wiser way, in most cases, to manage children so as to avoid the necessity for prohibitions and punishments. In spite of all our management there will be need enough for serious correction with ordinary children, so let us ward off the necessity whenever we can.

We must "Beware of entrance to a quarrel, but being in, bear it." When a child is losing all patience with work or play, and is in danger of some

word or deed of desperate naughtiness that could not be allowed to go unpunished—quick! *divert* it somehow, but with such skill that it will not suspect your motive. Appear not to observe the rising storm of temper, but say you wonder what the hens are all cackling so for, and suggest a search for eggs, or make some exclamation to draw attention to the team passing in the street. In this kind of family government a flower garden is a great help. Very little children may have their own beds. Our Birdie, when three years old, had a deal of daily comfort in his garden. It was small, and he scratched in all sorts of seeds with his little hands, sometimes two or three kinds in the same hill. Corn, squashes and pinks, cucumbers, beans and petunias, came up side by side, and much crowded; but we forebore criticism and joined in his admiration. Some of his flowers blossomed, and he had a few pods of beans, and two or three little wagon-loads of ears of corn—enough for quite a pretty job of husking. During the winter his little bags of seed-corn and his squash seeds which he saved last fall, were carefully treasured, and often exhibited. This spring he will have a larger garden and he is now old enough to plant and tend it more reasonably. I would not wonder if he should raise something to sell this year. The little things *must* have something to do. How tired we sometimes get of that oft-repeated question, "What shall I do?" If we cannot direct their industry, of course they will get "into mischief."

Gardening, after the plowing and spading are done, is easier than ordinary housework. There are so many things demanding a thought and a care at the same moment in housework—the oven, two or three kettles, the condition of the fire or fires, the baby, the cat, and perhaps company. Compared with this, gardening is very simple business. The sunshine may be hot, but the cook-stove is not less so. The odor of flowers and of freshly stirred earth is preferable to the smell of boiling cabbage any day, and no one but a starving man can like to hear the sputtering of meat better than the song of birds. Women who get pretty tired with in-door labor, would often find real rest in cultivating flowers. Gardening would be a great benefit to most young ladies, especially if carried on in connection with the study of botany. Pretty girls, who shun the sunshine, have no idea what a suicidal policy they are pursuing. Their beauty will fade and wither, and leave them prematurely old, unless they take exercise in the fresh air and sunshine, and give the hours of night to sleep. It is a good idea to wear gloves in gardening. Those of buckskin or old kid are better than cotton or woolen gloves. Some people will laugh and say "A cat in gloves will catch no mice," but we know that soft hands are more comfortable than hard and rough ones, and they are better fitted for sewing, piano-playing, care of children, and nursing the sick. With gloves, the hands need suffer no injury in gardening.

I think we need some kind of advanced classes in botany, and kindred studies in all our towns, for persons who cannot conveniently attend school. Most people do not realize what a *useful* study botany is. They fancy that it is merely an ornamental branch. There is health for the body, discipline for the mind, and culture for the heart in botany rightly pursued. It calls us out into the fields and woods, and there we may find, besides the sweet wild flowers, a cure for headache, cold feet, and "the blues." So much judgment is necessary in analyzing specimens that botany is one of the best of studies for cultivating the most practical mental faculties. And it is such a delight! It warms and softens the heart, and I, at least, will reckon it among my "means of grace"—I say it reverently.

Do you know that little children can be as deeply interested in examining and learning about a plant or a flower, as in listening to any of the foolish stories people generally amuse them with? It is just as easy for them to learn the names of the different parts—stamens, pistils, petals, etc.—as to learn "Hinty minty cuty corn," if you are interested yourself in what you teach, and do not try to instruct them too much. At first only call their attention, and let them come to the observation of a flower as to a *pleasure*, and not to a lesson. I don't want to be misunderstood: "Mother Goose" is well enough in her place. Nonsense will not hurt any one, unless it crowds out sense. But *this* does hurt children, and most of us have suffered from it,—to have their natural questioning, about things all around them, checked or unsatisfied. The faculties of observation seem to develop first, or *try* to develop, but they have such a poor chance!

"Don't ask so many questions"—the child is told, and when it does ask, "I don't know,"—is the usual reply. The fact that it fails at the time to get the knowledge it seeks is not half so bad as the danger that it will gradually learn to feel no interest in natural objects about it, and go through life having eyes yet seeing not.

I once belonged to a Floral Society, which seems to me now, even more than it did then, a very useful association. The working members were all women, and at times they numbered nearly three hundred. In the spring time there were often as many as one hundred present at the weekly afternoon meetings. At other times the number present was quite small. The members were from all ranks of society, and from all religious denominations in the town—old and young together. Among them were some who had had much experience in the cultivation of flowers. This was the object of the society—mutual assistance in floriculture and improvement in botany, and the ornamentation of the town as far as possible with flowers and shrubbery. Seeds and plants were brought in and given away by those who had them to spare, and other seeds were procured from seedsmen and distributed at the meetings. There was always some talk about the proper manner of cultivating different plants. This society usually had charge of the decoration of halls for festivals and fairs.

One winter, a plain, elderly woman, who had lately come among us, offered to give us a course of lectures on botany. These were just what we needed. She used the black-board freely to illustrate her lectures, and we were at liberty to ask questions at any time. She asked no reward, and we only gave her a vote of thanks and a life-membership; but it seemed to me that, for some of us, in whom she had awakened a hearty interest in botany (and I gratefully counted myself one of these) she had done incalculable service. It did me good to know that this woman began her own scientific studies, which extended over a wide range, after she was married and a mother. She used to leave her housekeeping and her little ones long enough on certain days of the week to go and hear the lectures given to the children of the public schools.

"Home is woman's sphere," we are told, until we get rather tired of hearing it. It is a hard saying for women who have no homes, but in a general sense, it is very true. What bothers me most is the bigness of the sphere and the incapacity of most of us women to fill it. We ought to help each other more, and it was of this I was thinking when I began writing about the Floral Society. A friend wrote me lately: "Our meetings have been very interesting during the winter. The talks have been more about house-keeping." So they might be, and more about the care and education of children, the prevention of disease by attention to the laws of health, and other useful topics of general interest. It seems better to have a Floral Society than a House-keeper's Club, or Mother's Meeting, because it is more likely to call in the young girls, and there is no general subject to rally around more agreeable than flowers. The social nature of such a society is one of its best features. Home may be woman's "sphere," but it should not be her grave, socially and intellectually. I think the pleasures of home are more keenly enjoyed and its duties more cheerfully performed by those who are not tied down to them constantly. Most women "love to *go*" (as we country folks say), and tea parties and fashionable calls are far less profitable than societies for mutual improvement. No Farmers' Club should exclude women, but they usually meet in the evening, when many women could not so conveniently leave home, and they cannot devote sufficient time to the interests that are peculiarly woman's.

I cannot see that the progress of the race depends more upon any human agency than upon the women who train the children and keep bright the altar-fires of Home—not only mothers, but all good daughters and sisters, and the dear "old maids." The message I have for all these "home missionaries" to-day is—in the great work we have intrusted to us, let us bring to our aid, in every possible way, the sweet and holy influence of flowers.

A Comforting Use of Flowers.

Miss F. Hudson writes: "A friend lost a little child. When my mother heard of it, her sympathetic feeling urged immediate action. The universal desire to assist or relieve the mourning family, which is always felt when such tidings reach one, was always hers. So she went to our beautiful cemetery and gave directions for a pile of evergreen boughs to be placed in the yard where the little one was to be laid. While this order was being executed, she procured several baskets of exquisite flowers and returned to the yard where the grave was already excavated. Under her direction it was then completely lined with Spruce and Hemlock boughs, the heap of earth taken from the grave was also covered with them. Then, with the assistance of a friend, mother arranged flowers amid all the green, literally lining the grave with flowers. They were secured in their places either singly, or in tiny bunches by hair-pins. The effect of the arrangement was most beautiful, but its comparative effect still more so, when one saw and felt the difference between a bed of sweetest flowers, and the bare open grave. The earth used in the burial service being but a symbol, certainly the single lump softly dropped by our pastor fulfilled its purpose better than the ordinary unerring spadeful."

Hints on Cooking, Etc.

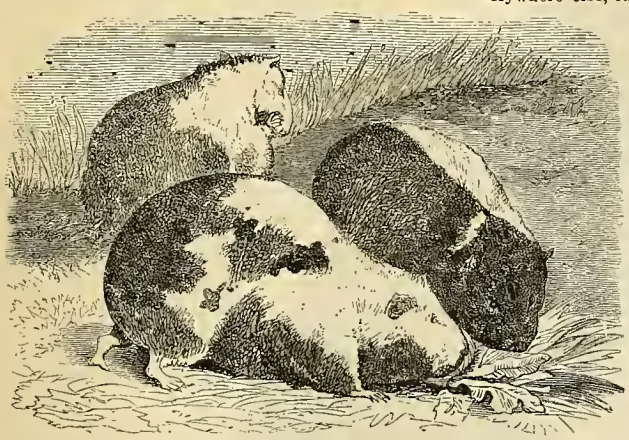
German Mustard.—Wm. Logier, Iowa, sends the following as his method of preparing mustard: "To half a pound of ground mustard add two ounces of sugar, and moisten with boiling vinegar; stir for half an hour with a wooden spoon, and set it aside, well covered, for an hour. Finally, add as much vinegar as may be necessary to thin it. Keep it well covered in a stone or glass jar." The mustard as sold in New York has some aromatic addition.—Who has another recipe?

An Excellent Rice Pudding.—By Mrs. W. Two qts. of milk, one cup each of rice and sugar, a teaspoonful of salt. Wash the rice and add it to the milk cold, and bake. The secret of having it nice consists in its being taken out of the oven before the milk is all dried away. It should be creamy in consistency, and when cool it is better than a pudding made with eggs, as there is no watery whey. Essence of lemon or raisins are an improvement.

Cream Pie.—By Mrs. R. J. R., Minneapolis, Minn. ½ cup of flour and 1 pint of milk boiled together, add the yolks of 2 eggs; ½ cup of sugar (white or coffee) and lemon to flavor the milk, and flour while boiling. Let all boil a few minutes. Make the crust and bake it, then put in the above mixture. Beat the whites of the eggs to a stiff froth, add enough white sugar to sweeten, and put this over the pie and bake to a light brown. This is enough for two pies.

Tea Stains on Table Linen.—Mrs. W. says: Japan teas stain table cloths more indelibly than other black teas, and for a long time it seemed impossible to take the stains out, but I find a weak solution of Chloride of lime will remove them. The solution must not be strong, and must be carefully strained; the cloth must not remain in the lime-water but a short time, and then must be thoroughly rinsed. The preparation sold as Javelle water would answer the same purpose.

BOYS & GIRLS' COLUMNS.



Guinea Pigs.

Most boys and girls have a liking for pets. Some keep birds, others have rabbits, and now and then we see one who keeps Guinea Pigs for pets. We do not think that they are as interesting as some other animals, but they are quite harmless, and very young children can take care of them without danger of being scratched or bitten. One funny thing about the Guinea Pig is, that it is not a pig and did not come from Guinea. It is much nearer a rat than a pig, and has been called by some one "a rat without a tail." It was not brought from Guinea, which is in Africa, but from some place in South America. The tame ones are variously marked with white, black, and brownish patches. They are easily raised if kept in a box where they will not get too cold or be damp. They like all kinds of vegetables, and they very seldom drink. While the Guinea Pigs are very tame, they are also very stupid, and do not seem to have much fun themselves or make much for others. They multiply rapidly, having six or eight young at a time. Whatever pet a boy or girl keeps, it should be attended to regularly. We have no right to place an animal in confinement, where it is prevented from seeking its own food, and then neglect to provide for its wants.

Rambles in China—"Pig Tails."

BY "CARLETON."

There is always something new and strange to be seen in China. It may be old to the Chinese, but it is new to us. While among that strange people, I was always seeing something queer or ludicrous. As I walked the streets, my eyes were always wide open; I was on the broad grin, and am pretty sure that if my young friends had been there, they would have stared and grinned with me. I was interested and amused very much by the traveling barbers, who went along the streets with their shops on their backs.

The Chinese shave not only their faces, but their heads as well, leaving only a tuft of hair upon the crown, which is allowed to grow long and is braided into a tail. They think a great deal of their tails.

It is curious to learn how they came to wear them. Several hundred years ago the inhabitants of China wore their hair as we do, but there was war between China and Tartary, and the Chinese got the worst of it and were conquered. When the first Tartar king of the present dynasty came to the throne, he determined to humble the pride of the Chinese. He began in 1644, by ordering every body to shave off all the hair, except a tuft on the crown; that being the way he wore his own hair. There were a great many proud and high-spirited gentlemen in China who would not obey the command, and the result was, they had their heads chopped off. It was quite the fashion in those days to cut off heads. King Charles I. of England lost his in 1649—not because he would not shave, but because he conspired against the liberties of the people. It is rather an uncomfortable thing for a man to lose his head. The Chinese thought so, and concluded to shave and braid their hair into a pig-tail, although it was an act of degradation. They felt it keenly, but as the years rolled on, they forgot the humiliation and began to like the fashion. When a thing is in fashion—no matter how uncomfortable it may be—even if it is as ugly as the great bundles of horse-hair and the chignons and braids which the ladies wear now in our country, there is nothing humiliating about it; but there are not many young ladies, or old ones either, who would like to be seen in the streets or at Church wearing their hair as was the fashion three or four years ago. A fashionable bonnet of 1865 would be frightful now.

As soon as the pig-tails became fashionable, the young gentlemen of China tried to get up the longest, neatest, and glossiest tails possible. They cultivated them just as young gentlemen in the United States, and almost everywhere else, cultivate their whiskers and monstache, greasing, combing, brushing, and fingering them all the time; and just as young ladies, and old ones too, exercise their ingenuity and skill in frizzling, puffing, plaiting, crimping, and braiding. The Chinese take as much comfort in dressing their hair as we do, only their style is somewhat different from ours. The barbers are all licensed by government, and if one starts a shop without a permit, he will have it unceremoniously kicked over by a policeman and find himself in prison. The outfit of a barber's shop is not very extensive. He has a wash-stand made of bamboo sticks with a bowl in the top. Above the bowl, and attached to the upright stick, is a small dish filled with hot water heated by a lamp, and there is also a soap box. The barber carries around a stool upon which the customer takes his seat. Beneath the seat are two or three small drawers, in which he carries his razor and towels. If New York had as many barbers in proportion to its population as there are in Canton, there would be seven or eight thousand of them! They seem to be always employed. They get very small pay for a shave, but as the people shave every day, they earn a living, notwithstanding there are so many of them in the business. They save all the hair, some of which is used for medicine! "*For Medicine!*" No wonder you open your eyes wide. The Chinese use all sorts of things in medicine. They pound up dogs' skulls into fine powder, mix in pieces of dry snake skin, parings of nails and human hair. They use all of these things and a great many more in medicine. The hair of the Chinese is always straight. I never saw a Chinaman with curly hair; but curly hair they think is an excellent medicine, and if a negro goes to China, he must look sharp, or the barbers will shave off all his hair to sell to the doctors! The hair which is not wanted for medicine is used for fertilizing the ground. They save everything that can give fertility to the soil, and as men are constantly going through the streets carrying buckets filled with the sweepings of the streets and the collections from out-houses, the air is filled with bad smells. The Chinese do not mind it, however, and the barber goes on with his shaving,—the people keep on eating at the street restaurants without thinking of their noses. After the barber shaves his customer, the pig-tail is attended to. The old braid is shaken out, the hair combed and oiled, and rebraided. The Chinese take great pride in having a long tail. To be in fashion, it must dangle almost to the ground, and if their own hair is not long enough, they do as the ladies of this country are in the habit of doing, braid in other hair, and then a skein of fine black silk at the end, as if it was the snapper to a whip. Instead of being a sign of disgrace as in former years, the pig-tail is now not only fashionable, but it is a mark of honor and distinction. They will consider it an insult if you speak disrespectfully of their cue, or if you handle it in a familiar manner. When they are about their work, they coil it upon the crown of their head; but when they are in the parlor or dining-room, it would be an unpardonable breach of politeness were they to appear with it coiled upon the head. They are as particular about letting it dangle down the back as a lady in this country is about putting on her gloves before going into company. It would show a want of respect not only for himself, but for you, were a Chinaman to keep his cue coiled upon his crown in your company. In China no man wears a beard until he is sixty years old. Custom does not permit it. It is very fortunate for some young gentlemen who are growing a few stray hairs on their upper lip, and who often look into the glass to see how they are getting on, and are constantly feeling of them, as if trying to make them grow faster, that they live in this country, for in China no man wears a moustache until he is a grandfather! The Chinese have no use for wigs. An amusing story is told of an Englishman who was bald-headed, and was shaved by a Chinese barber. The Englishman was accustomed to wear a wig, but he had it for the moment in his hat. The barber shaved him. When the barber's back was turned, he placed it on his head, and the Chinaman, upon turning around and discovering such a growth of hair on a head he had just shaved, thought he had the "Old *Harry*" for a customer! He ran as fast as he could to get away, from one who the next moment might have him in his clutches and carry him off to the place where, as the Chinese believe, men who have not done just right in this world, are pounded to pieces in morters, or are compelled to clasp red hot iron pillars, or are hung up by their tails to poles, or are obliged to sit down on stools filled with sharp nails. The Englishman had a hearty laugh, but the barber and all the people trembled with fear and kept out of his way.

In a town in England was a barber whose sign read, Theobald, Hair-Dresser. Some mischievous fellow painted out the O, and the astonished barber found himself The bald Hair-Dresser.

What did a blind wood-sawer take to restore his sight? He took his horse and *saw*.

"Mister," said Bob to the showman, "won't that Boa Constrictor bite me?"—"No, my little boy, he allers swallers his wittles whole."

A large number of illustrated rebuses, charades, connundrums and mathematical puzzles, have been sent to us by correspondents. The limited space afforded by the columns especially belonging to the boys and girls, will forbid the early appearance of some that may be accepted.

No. 379. *Illustrated Rebus.*—Contains very good advice.

No. 380. *Illustrated Rebus.*—Equally true with the preceding.

Answers to Problems and Puzzles.

The problem in Liquid measure, No. 372, in March, has called out an unusual number of answers, the most of which were correct. Some accomplished the division in an unnecessarily roundabout way, and others required the use of another vessel. The correct answer was given last month. We must repeat that we cannot publish a problem unless an answer is furnished. Some are going about which are mere catches and have no answer.

No. 375. This is a clever subdivision of words. It is a very old epitaph upon a woman who sold earthen ware, beginning: "Beneath this stone lies Katharine Gray,
Changed from a busy life to lifeless clay."

No. 376. One way that the 9 digits may be placed is:

8 1 6
3 5 7
4 9 2

No. 377. Fools only contend against a force that cannot be overcome. Fools on L Y, C on 10-Dey-G A in stay, 4 ee-T-hat-can, knot-B over Come.

No. 378. The man had 65 geese.

No. 379. 5 cattle at $10=$50. 1 Hog $3, and 94 sheep at 50 cts.=$47 All amounting to $100.

The following have sent correct answers, Where a

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FAIRY MARAUDERS.—From a Painting by J. F. Gookins, of Chicago.—*Drawn and Engraved for the American Agriculturist.*

figure is placed after a name, it indicates that the answer to that number was correct and the others not:

C. D. Hawkins, J. T. McLain, E. R. Miller, H. Hunter, C. N. Sears, Chas. F. Tolhurst, Jas. N. B. Clemmons (374), J. N. Shedenhelm, Robt. J. Wilson, B. H. Roberts, C. A. McCartny, Fred. Rush, Irene Ellison, A. F. Mum, S. W. Hanke, M. B. Kanth, J. C. Scanlan, Charles E. & Fred. S. Bronson, Chas. M. Walker, Sam'l Ewing, M. G. Keeney, Julia E. Kyle, G. L. Sypher, J. W. Miles, Jr., A. H. Hood, C. S. Wakefield (374), Minnie Allen (374), J. Siebenthaler, G. F. Mumma, L. E. Shriver, M. Butler, A. McMore, E. Tallman, E. Dollenmayer, J. W. Walker, M. Prosper Phillips, Eli Keith, L. C. Cowles, J. C. Slater, T. J. Laurie, F. H. Rohn, O. Woolston, "D. A. P.," E. F. Warner, J. Twininga, Jr., E. Cabot, Geo. M. Hemingway, J. N. Wilson, A. L. Hemingway, E. H. Scott, J. W. Cherry, Mrs. S. Littlefield, Maria Hayworth, P. H. Fetherman, C. F. Deibert, N. H. Haynes, W. T. Walters, R. L. Condon, Chas. B. McClure, W. A. Jacobs, C. A. Wilson, P. H. Mattes, "Dan.," "T. H. J.," L. P. Burt, F. Donbrana.

Some of the older boys and girls will be interested in the article on the aquarium given on page 185. Those who can refer to back volumes will find in April and May, 1867, something interesting about tadpoles or polliwogs.

The Fairy Marauders.

In a beautiful garden, where sweet Honeysuckles twined, where the Fuchsia hung its gorgeous pendants and hundreds of other flowers added their color and fragrance to make it just such a place as you would like to live in were you a humming-bird, a pair of humming-birds had built their nest. Such a cunning nest it was; all soft within, with the finest down, and without all covered with mosses so deftly put on that it would readily be taken for a knot upon a branch. The eggs were laid, and beautiful little eggs they were, not bigger than beans, and the humming-birds were happy. Mistress Humming-bird was sitting upon the nest one night, thinking what she should name the little ones when they should be hatched; while Mr. Humming-bird sat upon a twig near by admiring his wife as the bright moonlight made the feathers on her breast look brighter than jewels. A little noise below, a slight shaking of a rose leaf, and their long dreaded enemies were upon them—"The Fairies!" they both chirped at once, and instantly the peaceful scene was one of strife and confusion. There were the dreaded fairies, Fern-seed, Pea-blossom, and others, all out on a midnight raid. How stealthily the enemy approached and how valiantly the birds fought to protect their nest! These little imps with long boots made of the flowers of Honeysuckles and helmets of Columbine, what pranks they played and how the garden rung with tiny shouts and screams!—Oh dear, what a pity there are no fairies. Children all love to read about them, and older people too like to let their fancy run upon them. One of the most charming poems ever written is all about a fairy, and the artists paint beautiful pictures of fairies all from their imagination. The above picture is from an elegant painting in which the artist has made a little rogue so cunning and bright, that we cannot help liking him, though he is a marauder. The one at the nest looks like a mean fellow—he is letting the other do all the fighting, while he secures the plunder. The outline figures used to fill in around the oval, are worth examining; they are drawn by another artist, who seems to have thought that the fairies deserved punishment for their attacks upon the humming-birds, and has represented them in various difficulties. The hornet has taken upon itself to battle in the cause of the humming-bird, and we think that the little elf is in danger of a stinging rebuke, to say the least. Down below, a party of evil-doers are put into a leaf of a pitcher plant for safe keeping, while on the other side, a big spider is securing more fairies as prisoners of war.

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The following are presented as specimens of these testimonials:

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Hon. T. M. AVERY President National Watch Co., Chicago, Ill.:

Dear Sir:—During the month that I have carried one of your "B. W. Raymond" Watches it has not failed to keep the time with so much accuracy as to leave nothing to desire in this regard. For accuracy, in time-keeping, beauty of movement and finish your Watches challenge my admiration, and aronse my pride as an American, and I am confident that in all respects they will compete successfully in the markets of the world, with similar manufacturers of older nations. They need only to be known to be appreciated. Yours, most respectfully,

C. G. HAMMOND, Gen'l Sup't.

OFFICE OF THE HUDSON RIVER RAILROAD, Gen'l Sup't, New York, Jan. 17, 1870.

T. M. AVERY, Esq., President National Watch Co.

Dear Sir:—The Watch made by your Company which I have carried the past two months, has kept excellent time. I have carried it frequently on engines, and have been on the road with it almost daily. During this time it has run uniformly with our standard clock.

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Middleton & Bro.,	"	N.E.Crittenden&Co.,	Clevel'd.
T. B. Bynner,	"	M. Burt,	"
Henry Gimnel,	"	Morse, Reddin & Hamilton,	
Geo. W. Pratt & Co.,	"		Chicago.
Scott, Barrett&Co.,	Pittsburgh.	J. H. Hense,	Denver, Col.
J. R. Reed & Co.,	"	M. M. Baldwin & Co.,	San Francisco., Cal.
Dahme & Co.,	Cincinnati.		
Jenkins & Hatch,	"	Koch & Dryfus,	New Orleans.
C. Oskamp,	"	And over 400 others.	

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Extract from the Christian Union, March 26, 1870.

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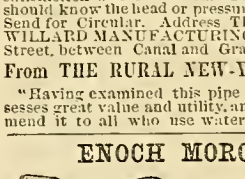

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(Title Copyrighted, and Preserving Powder Patented in United States, March, 1861, and August, 1867. Also, Patented in England, France, Belgium, South America, &c., &c.)

This Preserving Powder is a combination of powerful antiseptics, and warranted to be in every particular, as healthful as common table salt, and will effectually prevent fermentation and subsequent decay in all kinds of Fruit, Juices and Syrups of Fruits, Cider, &c. And preserve them in as good and healthful condition as the best "Canned or preserved" fruits, &c., without the trouble and expense of hermetically sealing or air-tighting the jars or cans. And with or without the use of Sugar.

It admits of keeping the fruit, &c., in large glass, or earthen or stoneware jars of any size, from one quart to six gallons, by simply tying an oiled cloth or paper, or moistened bladder over the top, and when opened the fruit, &c., may be used as wanted from time to time, without danger of fermentation being occasioned by weeks of full exposure to the air.

For Tomatoes and Vegetables such as green Beans, Peas, Asparagus, Corn, &c., (which all know are so difficult and uncertain to keep in the air-tighting method,) the preserving Powder will reliably keep them in glass or stoneware jars not larger than two (2) gallons, by simply corking and sealing with common bottle wax; when opened they will keep for a few weeks, giving ample time to use from large jars.

For fruits preserved with spices it prevents the spices from turning them dark color, and will keep them from becoming strong and unpleasant in taste.

For vinegar pickles it strengthens the vinegar and prevents their becoming soft.

We will compare the cost of jars in the air-tighting method with those used with this preserving powder.

For family use air-tight jars should not be larger than one quart; therefore, to preserve 12 quarts of fruit requires one dozen jars, which cost from $2.50 to $3.00, according to quantity purchased.

For 12 quarts of fruit with the preserving powder, we will use one three-gallon stone jar, which will cost from 62½c. to 75c., according to quantity purchased. Therefore it is manifest that the best jars necessary with the preserving powder will cost just one-fourth as much as patent air-tight jars, independent of their being so much more durable. But the preserving powder encourages still greater saving by admitting the use of imperfect jars that could not be used in other methods.

In confirmation we add a few testimonials in a condensed form, from families of the highest respectability, the originals of which may be seen at our office.

From MRS. REV. DR. CAMP, Bethseda Rectory, Saratoga Springs, N. Y.

Gents:—We used the American Preserving Powder last season, according to directions, in preserving strawberries and whortleberries, and to-day they are as good as new. I regard the Powder as a great saving of sugar, trouble, and money, and hope next season to use it more largely.
December 29, 1869. Respectfully, MRS. M. T. CAMP.

From D. T. STANTON, Warren C. H., Warren Co., Pa.

Gents:—The American Preserving Powder has given general satisfaction on all fruits it has been tried upon. I think there will be a large demand for it here next season.
December 29, 1869. Yours, etc., D. T. STANTON.

From N. H. M. POLLOCK, North Star, Alleghany Co., Pa.

Gents:—I used extensively your American Preserving Powder the past season with perfect success. I used it largely for corn. I could always save tomatoes, peaches, etc., well enough in tin cans sealed with wax, but corn would never save until I used the Powder. My corn is just as sweet and nice to-day as it was when cut off the cob in August. We used it in blackberries, tomatoes, peaches, apple-sauce, pears, and quinces, but, for want of confidence in the Powder, we sealed with wax all but a few jars of each to test its preserving qualities. The result is most satisfactory, and I shall use it the coming season, and am glad to be able to recommend it to every lover of good fruit. Yours, etc.,
December 27, 1869. N. H. M. POLLOCK.

From MARY A. WOODBRIDGE, Newburg, Cuyahoga Co., O.

Gents:—I used the American Preserving Powder last season with tomatoes only. I put them in stone jars, covering with oiled silk. Upon opening the jars we use them as wanted, and find them far superior to canned tomatoes; indeed, they are so fresh that I think, if they were cooked and used at the same time with others just picked from the vines, it would be impossible to distinguish between them.
Dec. 21, 1869. Respectfully, MARY A. WOODBRIDGE.

From GEO. MCKENZIE, Bangor, Van Buren Co., Mich.

Gents:—The half dozen packages of Preserving Powder I purchased of you the past season we used in putting up blackberries and peaches. We put up 76 pounds of blackberries with one package of the Powder; and, seeing our mistake, I wrote to you to know if they would keep, when you promptly stated in reply that you thought they would go up before winter. But, sirs, they have not, at this date (January 10, 1870), nor shown the least signs of fermentation. They were put up in large jars, without sugar, with paper tied over the mouth of the jars. We also put up a dozen large jars of peaches, without sugar and without air-tighting, and I will here state, for the benefit of our Western fruit-growers, they have given no signs of fermentation, and hold their flavor better than any canned fruit I ever saw.
Jan. 10, 1870. Truly yours, GEO. MCKENZIE.

From MRS. E. M. PEYOR, Milwaukee, Wis.

Gents:—We have used and distributed the half dozen packages of American Preserving Powder among our neighbors, and all like it. It is truly wonderful, and a great blessing to housekeepers, as it saves much labor and expense. Go on in this way and the blessings of thousands will rest on you. Respectfully, MRS. E. M. PEYOR.
September 30, 1869.

From NELSON GRIFFITH, Corunna, De Kalb Co., Ind.

Gents:—We used the American Preserving Powder on peaches, gooseberries, and blackberries, and it has proved itself to do all that you claim for it. Yours truly,
December 23, 1869. NELSON GRIFFITH.

From H. M. WOOD, M.D., Salem, Marion Co., Ill.

Gents:—I take pleasure in giving you our testimony in favor of your American Preserving Powder. We used it the past season in currants, gooseberries, raspberries, cherries, peaches, tomatoes, and green peas, with perfect success in all. Our neighbors who have tasted them agree with us in saying they are the best they ever ate. Mrs. Wood says she will not do without the American Preserving Powder if it can possibly be procured. Most respectfully,
January 17, 1870. H. M. WOOD, M.D.

From HON. JAMES RICE, Osceola, Clarke Co., Iowa.

Gents:—We used the Fruit Preserving Powder received from you last fall, in putting up grapes and some other late fruits, and have found it to be a perfect success. The fruit is in a perfect state of preservation. We put it up in large stoneware jars, and are using it with convenience. It is certainly an article of great merit. Yours truly,
January 6, 1870. JAMES RICE.

From EDWARD HIGBEE, Esq., Lancaster, Schuyler Co., Mo.

Gents:—I find the American Preserving Powder to be all that you guarantee it to be. All the fruits that I have put up with it have kept perfectly sweet and fresh. Yours truly,
December 21, 1869. EDWARD HIGBEE.

From W. WILLARD & SON, Macon, Macon Co., Mo.

Gents:—As far as introduced with us, the American Preserving Powder has given universal satisfaction, although we found prejudice strong at first. Our own family used the Powder with the best results, and another year we can guarantee the Powder. Very truly yours,
December 26, 1869. W. WILLARD & SON.

From W. H. CRAIG, Milan, Sullivan Co., Mo.

Gents:—My wife used the American Preserving Powder the past season, and finds it all you claim for it. Yes, more, for not only did it preserve the fruit without making the jars air-tight, but it preserved their flavor and color better. I think it the best preparation of the age, and would be glad to be the means of extending its sale in this part of the country. Very respectfully,
December 27, 1869. W. H. CRAIG.

From MRS. M. E. MARTIN, Milton, Sussex Co., Del.

Gents:—I used the American Fruit Preserving Powder the past season to preserve peaches, blackberries, and tomatoes, and so far they are in the best possible condition. There have been no signs of fermentation, while the flavor of the fruit is perfectly preserved. I can say they are in every respect equal to your recommendation. Yours truly,
January 16, 1870. MRS. M. E. MARTIN.

From C. G. BOYNTON, Felton, Kent Co., Del.

Gents:—We used a portion of the American Preserving Powder received last summer in preserving peaches, etc., and are prepared to recommend it and fully endorse all that has been said of their preserving qualities. We have peaches now just as nice and fresh as when preserved.
Yours respectfully, C. G. BOYNTON.
December 30, 1869.

From P. W. CUSTEED, Seaford, Sussex Co., Del.

Gents:—We used the American Preserving Powder last season in pears, peaches, strawberries, and currants. The fruit was put into ordinary stone jars without any attempt to make them air-tight, and as far as I can judge they are now as good as when first put up. I can conscientiously recommend the Powder as a labor-saving and effectual preparation. Yours, etc., P. W. CUSTEED.
December 31, 1869.

From M. A. F. KENT, Rutland, Anne Rundel Co., Md.

Gents:—I was so unfortunate as to lose the directions for using the American Preserving Powder last season, and could not use it only in putting up my grapes, which I have not the least fault to find with, as they are keeping nicely. I shall recommend the Powder highly.
Jan. 3, 1870. Respectfully, M. A. F. KENT.

From CHAS. H. MARTIN, West Friendship, Howard Co., Md.

Gents:—We are highly pleased with the American Preserving Powder, having put up peaches, pears, and tomatoes with it with the best success, and can safely recommend it to the public as a reliable and economical mode of preserving fruit, etc. Yours truly,
Jan. 1, 1870. CHAS. H. MARTIN.

From S. H. WILSON, Upper Falls, Baltimore Co., Md.

Gents:—All the fruit I put up with your American Preserving Powder last season appears to be keeping well. The peaches were of excellent flavor. I will recommend your Powder to my friends. Respectfully,
Dec. 20, 1869. S. H. WILSON.

From JOHN PRETLOW, SR., Franklin Depot, Southampton Co., Va.

Gents:—I used your American Preserving Powder the past season in whortleberries and peaches, which are now in a good state of preservation. I have, and can recommend the use of the Powder to others.
Jan. 1, 1870. Very respectfully, JOHN PRETLOW, SR.

From ROBERT A. PATTON, Second Creek, Greenbrier Co., W. Va.

Gents:—We used your American Preserving Powder the past season in putting up various kinds of fruit, according to directions. We have just opened a jar of peaches and find them *excellent* indeed—much better than any we have put up in any other way. I am well convinced your American Preserving Powder *is no humbug*, and will admirably serve the purpose for which it is intended.
Dec. 25, 1869. Respectfully yours, ROBERT A. PATTON.

From G. W. CARGILL, Winfield, Putnam Co., W. Va.

Gents:—My experience with your American Preserving Powder has convinced me that it is just the thing for the purpose for which it is recommended. My wife experimented with it on different fruits and vegetables, and in every case it has been a most complete success. We will not do without it hereafter if it can possibly be had.
Jan. 2, 1870. Yours truly, G. W. CARGILL.

From JNO. S. COPENHAVEN, Marion, Smyth Co., Va.

Gents:—I gave the American Preserving Powder purchased from you last season a fair trial, and the result proved entirely satisfactory. It is fully up to all that is claimed for it. Respectfully, JNO. S. COPENHAVEN.
Dec. 20, 1869.

From S. B. CLAIBORNE, New Glasgow, Amherst Co., Va.

Gents:—I have used the American Preserving Powder with great satisfaction in putting up peaches and tomatoes. We are now eating them daily, as fresh and nice as if just gathered. In my opinion, it is one of the greatest discoveries of this age. I would not be without the Powder for anything in reason, and would respectfully recommend to those who have never used it to try the Powder by all means. I am confident the most fastidious taste will be highly pleased with the fruit, etc. Very respectfully,
Dec. 21, 1869. S. B. CLAIBORNE.

From EMANUEL HEYSER, ESQ. Madison, Morgan Co., Ga.

Gents:—I have used the American Preserving Powder received from you last season, as directed, in preserving peaches and blackberries, and so far I am happy to say that with us it has given entire satisfaction. We are using the fruit so preserved, and consider it equal to any we we have had preserved in air-tight jars. Very respectfully,
Dec. 24, 1869. EMANUEL HEYSER.

From ALEXANDER BROS., Bowling Green, Warren Co., Ky.

Gents:—The American Preserving Powder gave entire satisfaction so far as we have heard. We sold all we ordered, and next season we guarantee to sell a great deal larger amount of it. Yours, etc.
Dec. 29, 1869. ALEXANDER BROS.

From JOSEPH Y. MOSS, Franklinton, Granville Co., N. C.

Gents:—My wife used the American Preserving Powder last season, and thinks it the best thing she ever saw for saving fruit. We sold considerable among our friends, and all were perfectly delighted with it. Mrs. Martha Tucker, proprietress of the hotel at Franklinton, says you may use her name in saying that it is all that you claim for it. Also, Rev. J. P. Caraway says you may use his name in praise of the Powder being all you claim for it. Also, Mrs. P. T. Long, of Franklinton, and Mrs. John Young, of Franklinton.
Dec. 31, 1869. Respectfully, JOSEPH Y. MOSS.

From C. W. CALLENDER, Saundersville, Sumner Co., Tenn.

Gents:—The American Preserving Powder fully answers expectations. We put up peaches, tomatoes, and damson plums; as far as tested, all are keeping well—very well. Shall use it largely next year. Will furnish your agent with very satisfactory and influential certificates. Only used two packages; distributed the balance. Every recipient pleased.
Dec. 26, 1869. Respectfully, C. W. CALLENDER.

From MRS. FANNIE E. MATHEWS, Jonesborough, Washington Co., E. Tenn.

Gents:—I am much pleased with the American Preserving Powder, and should we have a fruit season would be glad to give it a fair trial. We had but little fruit last year; but I can say this much, the Powder will preserve tomatoes, peaches, apples, and keep cider perfectly sweet, without imparting any unpleasant flavor. Should I send you a bill in the spring for several dozen packages, would you make a discount in the price? Respectfully,
January 3, 1870. MRS. FANNIE E. MATHEWS.

From WM. WARD, Crossville, Tenn.

Gents:—You request to know the result of the Preserving Powder received the past season. My wife was highly pleased with them; has some fruit on hand now intending to keep over to test them completely. I remain, etc.,
January 25, 1869. WM. WARD.

From MRS. JOHN A. KLEIN, Cedar Grove, Vicksburg, Warren Co., Miss.

Gents:—I have received a package of the American Fruit Preserving Powder last summer, and used it with perfect success in canning peaches. We have been using them through the winter, and find them, in appearance and flavor, equal to my best results from other methods, with much less trouble. I find they keep just as well with a simple cork as if sealed air-tight. I intend ordering a supply next spring.
Jan. 8, 1870. Respectfully, MRS. JOHN A. KLEIN.

From JAMES S. BARFIELD, Jackson, Hinds Co., Miss.

Gents:—I have sold the American Preserving Powder the past season, and find it has given satisfaction in every instance. Respectfully, JAMES S. BARFIELD.
Janury 9, 1870.

For farther testimonials see AGRICULTURIST of July, 1869, and June 1870.

One Box will preserve 64 pounds of Fruit, &c., and is accompanied with full directions for using.

Sold at our Office, and by all our Agents, at the uniform price of $1.00 per Box.

Or we will prepay Expressage and deliver to any Express Office in United States, upon receipt of $1.25 for a single Box, or Six Dollars for Six Boxes, or Ten Dollars for One Dozen Boxes.

We are only enabled to deliver at above prices by having a special arrangement with the Express Companies, to continue until the 10th of July, 1870. Therefore, all who would avail themselves of it should order by 1st of July. Regular Express charges, payable on delivery, varies from 30c. to $1.50 per single Box.

A Circular sent free—or a Manual of 56 pages, containing full directions for preparing and preserving fruit, &c., and full particulars, testimonials, &c., sent on receipt of 10 cents.

L. P. WORRALL & CO., Proprietors, 153 Chambers St., New York.

New and Valuable Melons.

Persian Watermelon. — Introduced by Bayard Taylor, Esq., the well-known traveler, from the borders of the Caspian Sea, and first offered for sale in 1867. After a trial of two years, we can confidently recommend it as a most valuable acquisition, particularly for the Middle and Southern States. It is globular and elliptical in form, of pale green color, with dark stripes; flesh, crimson, and of remarkably fine texture; delicious flavor, with only half an inch of rind. A peculiarity of this Melon is that it can be taken off the vine to ripen, and will keep until winter. It grows to a large size. Per pkt., 25 cts.

The Russian-American Watermelon.—Raised also by Mr. Taylor; a hybrid between the above and the Mountain Sweet Melon. This is an extraordinary hybrid, and entirely *unsurpassed* for size, delicious crispness of flesh, and sweetness of flavor. Three of them measured respectively, 20x13, 17x14, and 18x14, the largest weighing forty pounds. The Russian-American ripens about three weeks later than the American varieties, has the narrowest possible rind, with a mass of crimson flesh five inches in diameter, invariably sweet and solid, and far surpasses all melons hitherto known in the United States. Per pkt., 25 cts.

Minorca Muskmelon.—A new and valuable variety, grows to a large size; flesh of firm texture, excellent flavor, and very productive. 25 cents per packet of ten seeds; 5 packets for $1.00.

Alton Nutmeg.—This variety is highly esteemed at the West as a market variety. Its great productivness, beauty, size and firmness of flesh make it unequaled for shipping. It is of a delicious flavor, and continues long in bearing. Price per packet, 15 cts.; per oz., 50 cts. Address

B. K. BLISS & SON,
P. O. Box No. 5,712, New York.

New Sweet Potato.

Southern Queen.

A year's trial, of this superior variety introduced by us last season, confirms all that we then claimed for it.

Dr. Thurber, Editor of the *American Agriculturist*, thus speaks of it in the Horticultural Annual for 1870: "The root is very large, longer than the Nansemond, of a very light color, and is said to keep remarkably well. The vine is a vigorous grower, and the leaves larger and darker colored than the Nansemond. From a single trial of this potato we are inclined to place a high estimate upon its productiveness and good quality."

We offer for sale a limited number of plants at $2.00 per 100; $8.00 per 500; $15.00 per 1,000. No orders will be accepted for less than 100.

Nansemond Sweet.

Plants 75 cents per 100; $3.00 per 500; $5.00 per 1,000. *Sent by mail at 10 cents per hundred additional.*

Cash must accompany the order. Address

B. K. BLISS & SON,
P. O. Box No. 5,712, New York.

New Joint Parching Corn.

The most productive variety known, *producing from eight to ten ears on each stalk.* Equal to a yield of from one hundred to two hundred bushels per acre. Although it is, strictly speaking, a variety of parching corn, it is equally adapted to all purposes of common field corn for stock and poultry feeding, etc. It weighs, when shelled, stricken measure, sixty to sixty-two pounds per bushel. It should be planted in drills three feet apart, putting one kernel to every foot. Per packet, of about two hundred kernels, 50 cents; five packets, $2.00. For sale by

B. K. BLISS & SON,
41 Park Row, and 151 Nassau St., New York.

Lilium Auratum.

The Japanese Queen of Lilies.

A large importation from Japan, just received by the subscribers, in fine, healthy condition. Flowering Bulbs mailed to any address at following prices:

No. 1, $1.00 each; $9.00 per doz. No. 2, 75 cents each, or $6.75 per doz. No. 3, 50 cts. each; $4.50 per doz. Prices by the hundred or thousand will be given to dealers upon application.

B. K. BLISS & SON,
Nos. 41 Park Row, and 151 Nassau St., New York.

ALSIKE CLOVER.

A fresh supply of the genuine variety just received by the subscribers. 75 cts. per pound, by mail; $7 per peck or $25 per bushel, by Express. B. K. BLISS & SON,
41 Park Row & 151 Nassau St., New York.

BLISS' IMPROVED

Long Orange Carrot.

This superior variety is the result of a careful selection, for successive years, of the best formed, largest, and deepest-colored roots of the Imported Long Orange Carrot, by which it has attained a perfection hitherto unknown in this useful vegetable, being larger, better flavored, and of a deeper orange color, and more sure to produce a crop. Butter makers will find this variety very useful in giving to their butter a rich, deep yellow color. We unhesitatingly pronounce it the best variety in the market, and one which will not fail to give satisfaction to the purchaser. 1 oz., 20 cts.; 4 oz., 65 cts.; 1 pound, $2, by Mail, post-paid.

Address B. K. BLISS & SON,
P. O. Box 5,712, New York.

Seeds for Hedges.

Mailed to any address upon receipt of price. Osage Orange, $2 per M.; Three Thorned Acacia, 75 cts. per pound. Prices for larger quantities will be given upon application.

Barberry. (*Berberis vulgaris.*) very hardy, producing a fine compact hedge, affording ample security against intrusion; also valuable for its fruit, which is excellent for preserving. Per oz., 40 cts.; per lb., $5.

B. K. BLISS & SON,
P. O. Box No. 5,712, New York.

GLADIOLUS.

One dozen splendid mixed varieties mailed, post-paid, to any address upon receipt of $1.50. Address

B. K. BLISS & SON,
P. O. Box No. 5,712, New York.

Marblehead Mammoth Cabbage!

This is the largest cabbage in the world, sometimes weighing over sixty pounds each, and averaging as high as thirty pounds by the acre! It is not only large, but cannot be surpassed for reliability for heading, tenderness, and sweetness. As some cultivators have an impression that this cabbage cannot be fully matured outside of Marblehead, I invite their attention to the following extracts from among the many commendatory letters which I have received.

"Your Marblehead Mammoth Cabbage cannot be excelled. There were heads weighing 50 lbs., and heads of Fottler's Improved Brunswick (from your seed) weighing 40 lbs.—John H. Howlett, Charlestown, Ill."

"I raised from your seed Marblehead Mammoth Cabbages that weighed 50 lbs.—A. H. Mace, Clintonville, N. Y., Nov. 14th, 1869."

"Your Marblehead Mammoth Cabbages were very fine, they all headed well, and weighed 27 to 40, and 47 lbs.—W. Llewellyn, Red Wing, Minn., March 12, 1869."

"Your Marblehead Mammoth Cabbages are wonderful; they grew to the size of an umbrella.—Thomas Flanigan, Palermo, Kansas."

"The Marblehead Mammoth Cabbages were a perfect success. They headed well, and were three times as large as any cabbage I ever raised before.—J. F. Butt, Koscinsko, Miss."

"I have raised your Marblehead Mammoth Cabbage for two years, and it has proved the tenderest and sweetest cabbage I ever saw.—S. S. Groves, Stones Prairie, Ill."

John Van Wormer, Springs' Mills, Mich., raised some weighing 30 lbs. John Humphreys, Titusville, N. Y., 33½ lbs. M. D. Clark, Elyria, Ohio, 37 lbs. H. A. Terry, Crescent City, Iowa, 40 lbs., measuring 56 inches around the solid head. Thos. A. Lambert, Becancour, C. W., exhibited three cabbages weighing respectively 40, 42½, and 44 lbs. John W. Dean, St. Michael's, Md., has grown them weighing 33 lbs. S. M. Shuck, Preston, Minn., 33 lbs., when trimmed. E. H. Ellis, Etna Green, Ind., over 30 lbs. A. E. Garrison, Des Moines, Iowa, 30 lbs. James S. Allen, Union Springs, N. Y., 30 lbs., when stripped of loose leaves. Wm. Lee, Jr., Denver, Colorado, has grown heads weighing 45 to 50 lbs., as a penalty for which the miners of the mountains call him the "Big Cabbage Man." Leonard Choat, Denver, Colorado, raised one which weighed 46 lbs. when trimmed of waste leaves. Collins Eaton, Ogdensburgh, N. Y., 50 lbs. P. Sweeney, Loretto, Pa., 43 lbs. Sam'l B. Ornsbee, Rolling Prairie, Wis., 53 lbs. Chas. W. Oden, Little Sioux, Iowa, produced quite a lot weighing from 50 to 60 lbs. A. C. Van Tassal, 39 lbs. trimmed. A. C. Goodwin, Kennedy, N. Y., 45 to 50 lbs. W. H. Spera, Euphrata, Pa., raised fifty heads that averaged over 31 lbs. each. Wm. D. Munson, Burlington, Vt., raised some weighing 46 lbs. Mary B. Sellman, Galesburg, Iowa, 38 to 43 lbs. stripped of loose leaves. Hundreds of others have written me that they have "taken all the prizes at the County Fairs." "Raised the largest cabbage ever seen in the country." "Astonished all their neighbors." "That in sweetness, crispness, and tenderness, they were unequalled," etc., etc. As the original introducer of the Mammoth Cabbage, I am prepared to supply seed grown from *extra large heads*, at following prices, by mail, post-paid: Per package, 25 cts.; per oz., $1; 4 ozs., $3.50; per lb., $12.

Full instructions for cultivation accompanying the seed.

Catalogues free. JAMES J. H. GREGORY,
Marblehead, Mass.

FERRE, BATCHELDER & CO.'S
ILLUSTRATED CATALOGUE
of Seeds and
VEGETABLE AND FLOWER GARDEN

MANUAL for 1870, will be ready for distribution early in January. It will contain about 100 pages, with numerous illustrations—a complete list of Vegetable and Flower seeds, to which will be added a list of **Summer Flowering Bulbs, Plants and Small Fruits.** Sent to all applicants **enclosing 10 cents.** Our customers supplied without charge. Address

FERRE, BATCHELDER & CO.,
231 Main St., Springfield, Mass.

Early Mohawk Potatoes.

The earliest of the earlies, of large size and free from disease, and of superior quality both as an early and late winter and spring variety.

$15 per Bbl.; $7 per bushel; $2 per Peck.

Conover's Colossal Asparagus Roots.

The Largest, Best, and most Prolific variety ever introduced, and pronounced by the leading horticulturists the greatest improvement in vegetables of the day.

$3.00 per hundred; $25.00 per thousand.

Send for Circulars of Testimonials and directions for setting out to S. B. CONOVER,
260 West Washington Market, New York.

Three Best Squashes!

The Hubbard is the sweetest, dryest, and richest table squash for winter, the *American* Turban for fall, and the Boston Marrow the best pie squash. Seed sent post-paid to any address, at 10 cents a package; Hubbard and Turban 25 cents an ounce, and Boston Marrow 20 cents an ounce. I take pride in having been the original introducer of the Hubbard squash. My Illustrated Catalogue of Garden and Flower seed sent gratis to all.

JAMES J. H. GREGORY, Marblehead, Mass.

European Larch Seed (*Larix Europæa*).

A supply of *Fresh Seed* just received by the subscribers, and mailed post-paid to any address at following prices: 1 oz., 25 cts.; ¼ lb., 75 cts.; 1 lb., $2.50.

Address B. K. BLISS & SON,
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Sweet Potato Plants.

Southern Queen.—The best Sweet Potato known. *Two to four* weeks *earlier* than any other variety. $2.00 per one hundred.

Nansemond, 75 cents per 100, by mail.

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Nansemond Sweet Potato Plants.

Of best quality, during May and June. Put up to carry safely long distances. By Express, Price, 500, $2.25;—1,000, $3.50;—5,000, $15.00;—10,000, $28. This variety is successfully grown at the North. Send for our Circular of directions, etc. Address

M. M. MURRAY & CO.,
Foster's Crossings, Warren Co., Ohio,
and 181 & 183 West Second St.,
Cincinnati, Ohio.

NANSEMOND SWEET POTATO PLANTS, by the 100, 1,000, or 10,000. Send for price list of Vegetable Plants. Address H. E. ACKER, Seed Grower,
Woodbridge, N. J.

EARLY ROSE POTATOES, $1 per 60 lbs.; 2d size, 75 cts. per 60 lbs.; or as low as any offered in this paper. Also, Small Fruit Plants, all warranted genuine, packed and shipped at Philadelphia without extra cost.
JOHN S. COLLINS, Moorestown, N. J.

PREMIUM SANFORD CORN.—Warranted genuine, $3 per bushel, $1 per peck, or one quart, post-paid, 40 cts. Also, 100,000 Nansemond Sweet Potato Plants, $4 per 1,000. Address A. R. NORTON, Selden, Long Island, N. Y.

Superior Dutch Bulbs.

RICHARD LAUER, 52 Cedar St., New York, Importer. Sole Agent for the U. S. of the celebrated nurserymen Messrs. L. VAN WAVEREN & Co., Holland, whose superior products are unsurpassed, is now prepared to receive special orders from responsible parties. All orders for prime selected Bulbs must be sent in to me before the 15th of June. Price-current with Catalogue of my Fall Importation forwarded upon application. Post Office Box 1,083.

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564 pages royal 12mo, post-paid, $2.50.

This new and eagerly expected work is the result of the author's experience and life-long labors in *Classifying the Science of Botany.* He has at length attained the realization of his hopes by a wonderfully ingenious process of condensation and arrangement, and presents to the world in this single moderate-sized volume a *complete manual.* In 370 duodecimo pages he has actually recorded and defined *nearly* 4,000 *species.* The treatises on Descriptive and Structural Botany are models of concise statement, which leave nothing to be said. Of entirely new features, the most notable are the Synoptical Tables for the black-board, and the distinction of species and varieties by variation in the type. Sample to teachers for examination, *half price.*

A. S. BARNES & CO.,
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Green-House Plants and Marshall Neil Rose.

A fine stock of this superior Rose for sale at $6 per dozen, or $25 per 100. A fine colored plate of which will be sent free to all applicants. Green-house and Bedding Plants in full assortment and excellently grown, supplied. Also, selections of Roses and Bedding Plants, varying in price from $25 to $5 for each selection. Special Circulars giving lists of the selections, *sent free* to all who apply.

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The Cranberry and its Culture.

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CHEAPEST AND BEST.

Concords—$12.50 per 100; Ives'—$12.50 per 100.
Descriptive Illustrated List of Grapes and Small Fruits, GRATIS.
M. H. LEWIS,
Drawer 150, Sandusky, Ohio.

Bloomington (Ills.) Nursery.

19th Year! 500 Acres! 10 Green-houses!
Send 10c. for Catalogues. F. K. PHŒNIX.

SILVER MAPLE.—The best *quick growing* shade and timber tree. Seed, freshly gathered, sent by mail if ordered by June 15th. 1 oz., 15c.; 8 oz., $1.00; 1 lb., $1.50.
J. M. BENTHALL, Quasqueton, Buchanan Co., Iowa.

ORNAMENTAL PINE SEEDS.—100 lbs. Seeds of "*Cedrus Deodora*," just received, for sale by
W. IRVING CLARK, 212 Pearl St., New York.

MEXICAN EVERBEARING STRAWBERRY. A hardy, vigorous plant, bearing fruit from early June until the frosts of winter. Of good size and fine flavor. No garden should be without them. Orders addressed to J. P. WHITING & CO., Detroit, Mich., or to CLARK & HITCHCOCK, Buffalo, N. Y., will receive prompt attention.
SEND FOR CIRCULAR.
PRICE OF PLANTS, $3.00 per Dozen.

PURCHASERS WANTED for 1,000,000 Small Fruit Plants and 1,000 barrels of Early Rose Potatoes. Send for prices. JOHN S. COLLINS, Moorestown, N. J.

100,000 Strawberry Plants for sale, all the best kinds; for particulars see my advertisement in April No. Send for descriptive Catalogue.
WM. S. CARPENTER, Rye, Westchester Co., N. Y.

IMPORTED AND NATIVE NURSERY STOCK at Wholesale. A. P. CHAPMAN,
50 Vesey Street, New York.

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NEW ARRANGEMENT.

The "Metropolitan Washing Machine Company,"

having become convinced of the great merits and usefulness of DOTY'S PATENT TREE PRUNER AND FRUIT PICKER, AND BLACKBERRY PRUNER, have now arranged for their EXCLUSIVE MANUFACTURE AND SALE.

The TREE PRUNER and FRUIT PICKER (7 feet long) enables the operator to easily cut off any green limb of one inch (or less) in diameter, (or gather fruit,) 13 feet from the ground, without step-ladder.

The following valuable testimony is from the estimable Chairman of the Horticultural Branch of the American Institute, and widely known and acknowledged as *one* of the best authorities—probably *the best*—on Apples especially, in America:

RYE, WESTCHESTER CO., N. Y., 3d mo. 1st, 1870.

MR. DOTY:—I believe I was one of the first to use your Patent Long-Handled Pruner. The first one I had from you has been in constant use for about five years, in the pruning season. I have been enabled to shape all my ornamental and fruit trees with it, and *would not take for it now ten times the cost*, if I could not get another. The last one I got from you is a decided improvement on the first one, being much lighter, and its cutting power much greater. For a pruner of fruit and ornamental trees, shrubs, blackberries, etc., I know of nothing so valuable.

Very respectfully, WM. S. CARPENTER.

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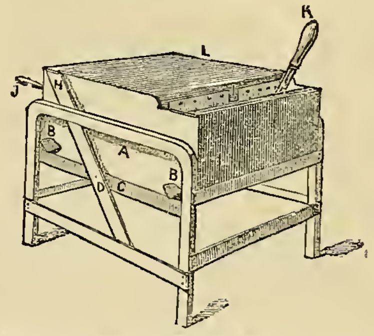

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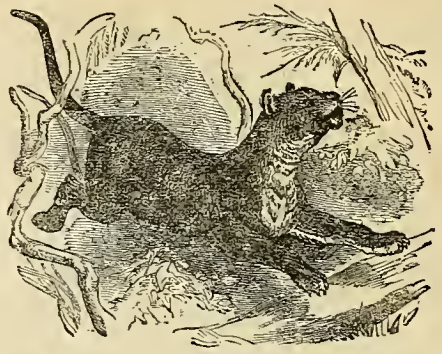

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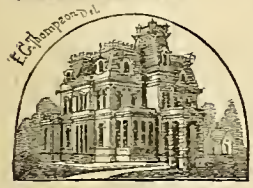

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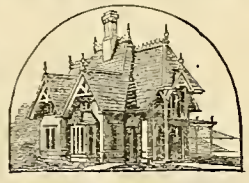

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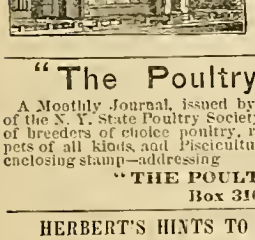

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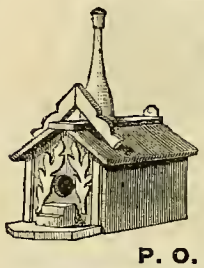

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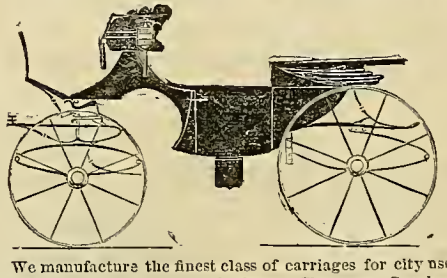

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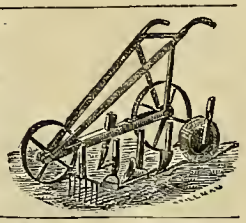

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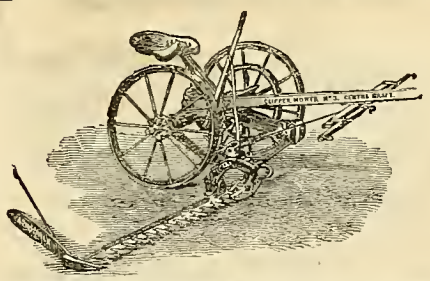

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There is no grain that grows or becomes so tangled and lodged that this Reaper will not cut, clean, and deliver in the most satisfactory manner. (By this we do not mean that it straightens the straw or lays it as compact as when standing); *otherwise we mean all we say.* Its draft is about the same as that of a Light 4-ft. Cut Mower; we make them to cut a 5 or 6 feet swath; 15 acres is an ordinary day's work. A 6 feet cut was used the past summer by a man and an ordinary span of horses, and cut 21 acres between sunrise and sunset; it is simple in its construction, so much so that any boy or ordinary field hand can work it to its full capacity, or it can be worked automatically, as preferred. We manufacture for the States of Minnesota, Wisconsin, Pennsylvania, and New York State east of the Genesee River, except the Counties on the Hudson River; and are prepared to furnish Machines to the farmer or the trade. For other particulars send for Circulars in pamphlet form.

Address C. C. BRADLEY & SON, Syracuse, N. Y.

SUGAR CANE AND SORGHUM MILLS, Evaporators and Horse-Powers, embodying all the recent improvements and taking the lead of every kind in market. Manufactured by GEO. L. SQUIER & BRO., Buffalo, N. Y.

Either Sugar or Sorgho Manuals for 1870 *sent free.*

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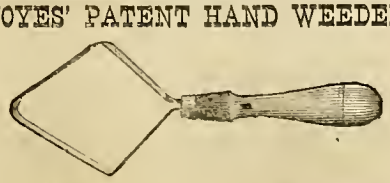

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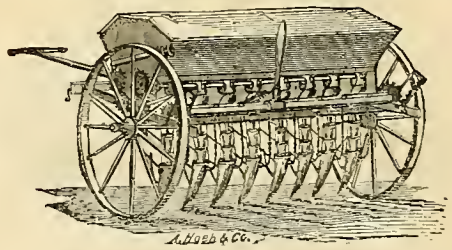

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Simple, durable, complete in every detail for work or management. Warranted to give entire satisfaction in the distribution of Oats, Peas, Corn, Beans, Barley, Wheat, and Rye, or any other Field Grains.

The best made, best working, and Lightest Draught Grain Drill in the world.

Agents desired in every locality. For Drills, Circulars of description, or Agencies, address

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ALL WHO USE

Phosphates, Guano, or other Fertilizers, for Potatoes, Corn, Cotton, Peas, Beans, &c., &c., will save money, and avoid hard, disagreeable work, by using the

PLANET DRILL.

It *spreads* Fertilizers evenly in the row, any thickness, saving first cost in sowing one ton of Guano, by gaining time and avoiding loss from winds and carelessness. It also sows *every kind* of Garden and Truck, and most Tree Seeds. *We challenge comparison.* Light, durable; don't get out of order or choke. Work with ½ oz. of seed. No. 1, 5 lbs. seed, $12.00; No. 2, 12 qts. seed or Fertilizer, $20; No. 3, ½ bushel seed, or Fertilizers, sowing in the furrow only, $20.

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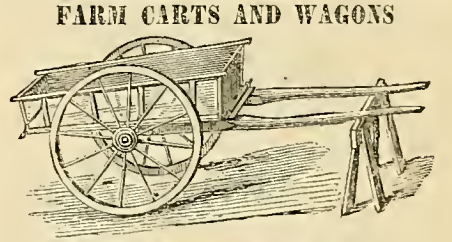

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A perfect hand-machine for sowing with *regularity and in proper quantity,* Beet, Carrot, Onion, Parsnip, Turnips, Sage, Spinach, Sorghum, Broom-Corn, Peas, Beans, etc. It is very simple, compact, durable, easy to operate, and *shows the seed as it drops* to prevent any mistake or failure, ridges the earth over the seed, and marks the rows straight any width desired. All springs, slides, reeds, and brushes dispensed with. Price $12.00.

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An improved implement to weed between the rows and mellow the soil. It expands from 8 to 14 inches in width, is simple and efficient. Price $6.00. Manufactured and sold by F. F. HOLBROOK & CO., Boston, Mass.

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Corn, Potatoes, and the various kinds of Root Crops. Is extensively used. Price $12.00.

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A pair of extra large rear plows, made for hilling up, $1.50. An extra large middle plow to furrow, and use among potatoes, $1.50.

It is a complete pulverizer of the soil, and is generally preferred to the crossing plow, or to the harrow, in mellowing the surface of plowed land preparatory to putting in the crop, and for covering manure near the surface without disturbing the inverted sod or other vegetation previously buried by the plow.

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OVER TWENTY THOUSAND

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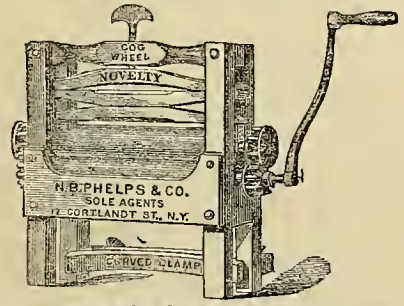

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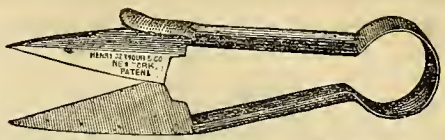

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Length of Blade—Thumb-piece.

SHEEP TOE SHEARS, $2 per pair.

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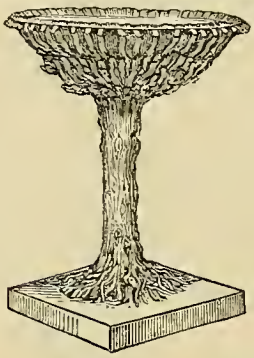

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AGENTS WANTED.

We wish to get energetic agents in every section of the United States and Canada, where we are not now represented, to sell

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This Machine is first-class in every respect, and at the same time furnished

At a price within the reach of all.

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By enclosing the above price, and 25 cents additional for expressage, we will send either size, or both, to the nearest Express Station.

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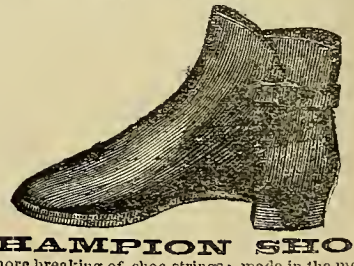

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Victor Cane Mills, Cook's Evaporator, Victor Grain Drill.

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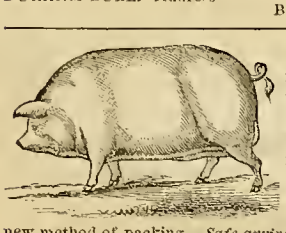

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Pure Bred Poultry and Eggs.

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Houdan and Gray Dorking Fowls.

Eggs from the above for sale. Houdan, very fine and fully up to standard, $5 per doz. Gray Dorking (from stock of Jas. C. Cooper, of Limerick, Ireland), extra large and handsome, $3 per doz., carefully packed and delivered to Express upon receipt of price. Address C. D. VALENTINE, Fordham, Westchester Co., N. Y.

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BENJ. CHICKERING, Sec'y and Treas'r.
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This feature is absolutely Secured to the Policy Holder by a Law of the Commonwealth of Massachusetts, GUARANTEEING EVERY DAY'S INSURANCE PAID FOR.

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Economical management; safe investments; careful selection of lives; prompt and honorable settlements; liberal conditions of travel and residence.

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ESTABLISHED 1861.

THE

GREAT AMERICAN

TEA COMPANY

Receive their Teas by the Cargo from the best Tea districts of China and Japan, and sell them in quantities to suit customers

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NEW CROP TEAS.

We are now receiving several Cargoes of the finest quality of

EARLIEST PICKINGS

of the

NEW CROP TEAS,

ever imported from China and Japan, (some just arrived, and others on the way). They have been selected from the growth of the best Tea Districts, and are very fresh and of the choicest flavor, and cannot fail to give entire satisfaction. We are

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GROUND COFFEE, 20c., 25c., 30c., 35c., best 40c. per pound. Hotels, Saloons, Boarding-house keepers, and Families who use large quantities of Coffee, can economize in that article by using our FRENCH BREAKFAST AND DINNER COFFEE, which we sell at the low price of 30c. per pound, and warrant to give perfect satisfaction. ROASTED (Unground), 30c., 35c., best 40c. per lb. GREEN (Unroasted), 25c., 30c., 33c., best 35c. per lb.

CLUB ORDER.

BRAIDWOOD, Will Co., Ill., Feb. 14th, 1869.
TO THE GREAT AMERICAN TEA COMPANY,
31 and 33 Vesey Street, New York.

Gentlemen:—Business, and a want of opportunity, have for the last eight months prevented me sending, or rather attending to our monthly club, whose orders I sent you regularly for about a year previous. Since that time many indeed have been the solicitations by many of the members, that I should once again commence and send club orders—for, as some declared, they had got *no Tea*, no matter what the price paid, since I quit sending the club orders. I have, therefore, at the urgent request of a few, resolved to send you a small order monthly, and as a beginning send you the following:

2	English Breakfast	John James	at 1.20	2.40
1½	English Breakfast	Jas. Reside	at 1.20	1.80
2	English Breakfast	John Rancie	at 1.20	2.40
2	Uncolored Japan	Wm. Ross	at 1.00	2.00
1	Imperial	Wm. Ross	at 1.25	1.25
1	Young Hyson	Wm. Ross	at 1.25	1.25
1	Oolong	Pat. McGerrity	at 1.00	1.00
2	Imperial	John Larken	at 1.25	2.50
1	Oolong	Wm. Duffie	at 1.00	1.00
4	Young Hyson	Thos. Conners	at 1.25	5.00
6	English Breakfast	Robert Barr	at 1.20	7.20
2	Uncolored Japan	John James	at 1.25	2.50
3	English Breakfast	Geo. Simpson	at 1.20	3.60
2	Imperial	Wm. Brooks	at 1.25	2.50
1	Imperial	Wm. Brooks	at 1.25	1.25
1	English Breakfast	Wm. Brooks	at 1.20	1.20

Address to John James, Braidwood, Will County, Illinois, —per Merchants' Express—to be collected on delivery; and oblige Yours respectfully, JOHN JAMES.

Parties sending club or other orders for less than $30 had better send a Post-office draft or money with their orders, to save the expense of collections by Express, but larger orders we will forward by express, "to collect on delivery."

Hereafter we will send a complimentary package to the party getting up the club. Our profits are small, but we will be as liberal as we can afford. We send no complimentary packages for clubs of less than $30.

Parties getting their Teas of us may confidently rely upon getting them pure and fresh, as they come direct from the Custom House stores to our warehouses.

We warrant all the goods we sell to give entire satisfaction. If they are not satisfactory, they can be returned at our expense within thirty days, and have the money refunded.

N. B.—Inhabitants of villages and towns where a large number reside, by *clubbing* together, can reduce the cost of their Teas and Coffees about one-third, (besides the Express charges) by sending directly to "*The Great American Tea Company.*"

BEWARE of all concerns that advertise themselves as branches of our Establishment, or copy our name either wholly or in part, as they are *bogus* or *imitations*. We do not, in any case, authorize the use of our name.

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Nos. 31 and 33 VESEY-ST.,
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STATIONARY,
AND
AGRICULTURAL

STEAM ENGINES.

UNEQUALED BY ANY IN COMBINED MERITS OF CAPACITY, DURABILITY, SIMPLICITY, AND ECONOMY.

Our PORTABLE ENGINE, mounted on *Locomotive Boiler*, having fire-box and ash-pit entirely surrounded by water-space, is set upon legs and timbers; occupies little room; needs no brick-work; is suitable for use in any place where power is required—in *Mills, Shops, Foundries* or *Printing-rooms* or in *Stock Barns*, for grinding, cutting and steaming food for stock.

The STATIONARY ENGINE is complete, with *Governor, Pump* and *Heater*, with connections fitted.

The AGRICULTURAL ENGINE, supplied with *Locomotive Boiler*, is mounted on wheels, with pole for attaching horses for moving from place to place; is suitable for *Grain Threshing, Corn Shelling, Wood* and *Shingle Sawing, &c.*

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TO ACTUAL SETTLERS.

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One-third of the labor required at the East in the culture of farms will insure here double the amount of crops. For orchards, grape culture, and small fruit in general, it is unequaled.

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THE CLIMATE AND HEALTH of Kansas are unequaled. These, indeed, are among its chief excellencies, and are recommendations for settlement.

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TERMS OF SALE.—One-tenth down at time of purchase. No payment the second year. One-tenth every year after, until completion of payments, with annual interest.

THE HEAD LAND OFFICE is located at JUNCTION CITY. To all purchasers of lands *free tickets* from this point are given over the Road.

For further information address
ISAAC T. GOODNOW,
Land Commissioner,
Junction City, Kansas.

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Carbolic Disinfecting Soap.

Positively destroys all insect life on Cattle, and cures **Mange, Scratches** and sores of all kinds.
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Boxes of 10 lbs., $4.00.

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This preparation is far superior to tobacco, not so disagreeable or unpleasant, much less trouble, and more permanent. Cures Scab and destroys Ticks, Lice, etc. Cans of 5 lbs., $1.25; 10 lbs., $2.25; 50 lb. kegs, $10; 200 lb. Bbl., $35.00.

Ointment.

For cure of **Footrot** and destruction of the **Screw Worm.** 1 lb. cans, 50c.; 3 lbs., $1.00; 5 lbs., $1.25.
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52 Barclay St., New York.
Pamphlets furnished.

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Farm, Garden, and Household.

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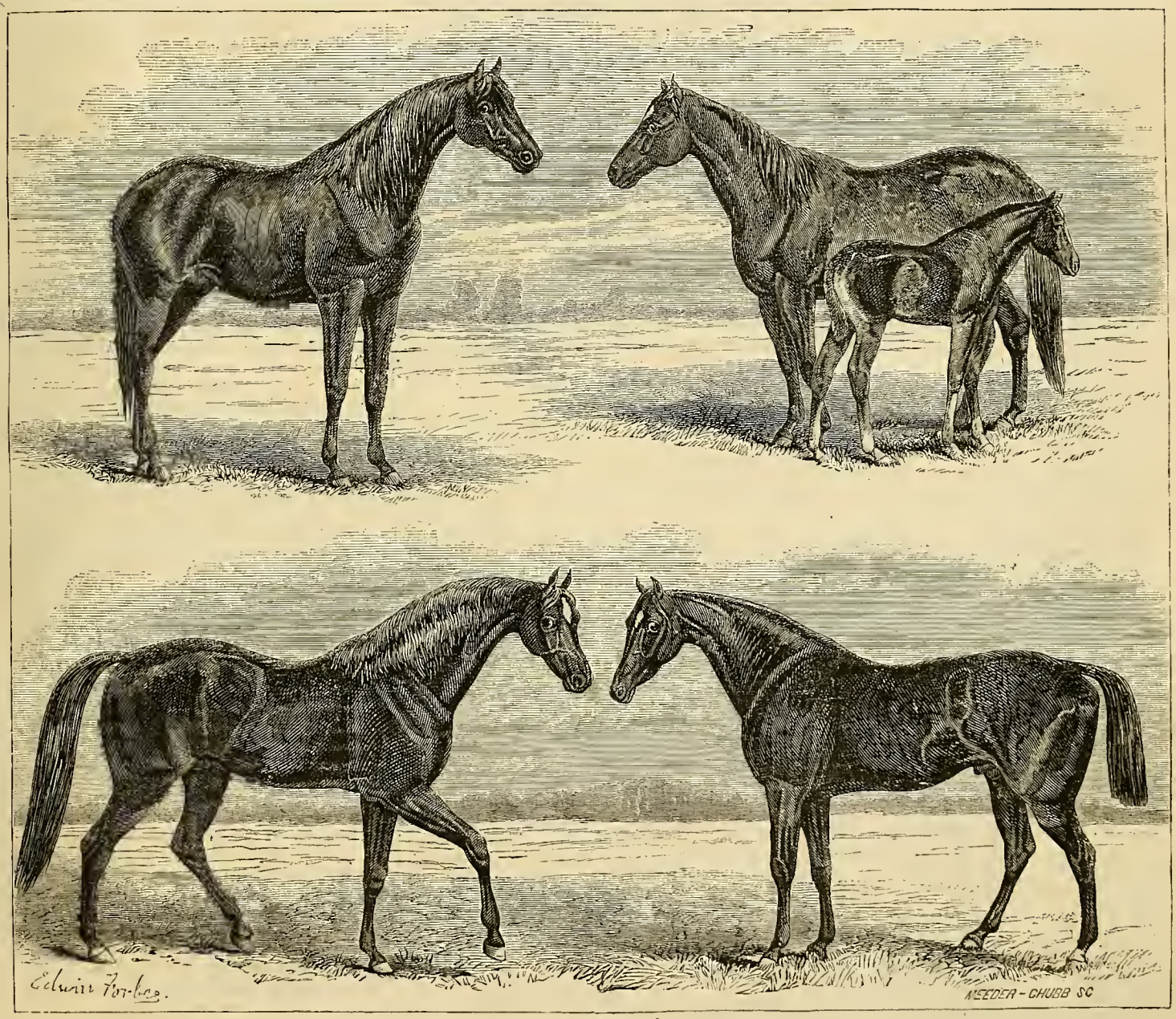

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THOROUGH-BREDS OF CLIFTON STUD.—*Drawn and Engraved for the American Agriculturist.*

The Thorough-bred compares with other horses, as oak compares with pine, or steel with iron. Blood tells for generations; and the best blood among the thorough-breds is of course very valuable. We give above, striking pictures of some of the best of Mr. R. W. Cameron's horses. Clifton Stud Farm, Staten Island, has been for several years famous for thorough-bred stock of several kinds—Shorthorns and Jerseys, Berkshires and Dorkings—besides its stud of mares, stallions, and young horses.—*Leamington*, the horse on the lower left-hand side, is regarded as the handsomest model for a race-horse in this country if not in the world. He is so well known, both here and in Europe, that it is only necessary to state that he is a very powerful, dark brown horse, 16½ hands high. He was got by Foig-a-Ballagh, out of a Pantaloon mare. Foig-a-Ballagh was full brother of Irish Birdcatcher, and all the family are famed race-horses. Leamington was imported by Mr. Cameron in 1866, and was sold last autumn to Mr. A. Welch, of Chestnut Hill, Philadelphia, for $15,000. He stands at Patterson, N. J., this season, at $200.

This horse (in England) twice won the Chester Cup, 2½ miles, carrying the heaviest weights, and beating in one race 37, and in the second, 41 horses. He also won the Goodwood Stakes, and was considered the best horse of his day. His get in this country are already famous: Lynchburg and Enquirer, in Kentucky; Miss Alice and Anna Mase, here, established his superiority. Lynchburg was sold for $5,000, and this price was refused for Enquirer. $7,000 was offered and refused for Miss Alice after her famous match last year, but both she and Anna Mase were unfortunately killed by accidents.

The stallions Glennevis and Warminster, and the mare Rebecca, are described on page 206.

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Back Volumes Supplied.—The back volumes of the *Agriculturist* are very valuable. They contain information upon every topic connected with rural life, out-door and in-door, and the last thirteen volumes make up a very complete library. Each volume has a full index for ready reference to any desired topic. We have on hand, and print from electrotype plates as wanted, all the numbers and volumes for thirteen years past, beginning with 1857—that is, Vol. 16 to Vol. 28, inclusive. Any of these volumes sent complete (in numbers) at $1.75 each, post-paid, (or $1.50 if taken at the office). The volumes, neatly bound, are supplied for $2 each, or $2.50 if to be sent by mail. Any single numbers of the past thirteen years will be supplied, post-paid, for 15 cents each.

Calendar for June.

Day of Month.	Day of Week.	Boston, N. England, N. York State, Michigan, Wisconsin, Iowa, and Oregon. Sun rises.	Sun sets.	Moon sets.	N. Y. City, Ct., Philadelphia, New Jersey, Penn., Ohio, Indiana, and Illinois. Sun rises.	Sun sets.	Moon sets.	Washington, Maryland, Virginia, Kentucky, Missouri, and California. Sun rises.	Sun sets.	Moon sets.
		H. M	H. M	H. M.	H. M	H. M	H. M.	H. M	H. M	H. M.
1	W	4 25	7 30	9 36	4 31	7 24	9 31	4 36	7 19	9 25
2	T	4 25	7 30	10 25	4 30	7 25	10 20	4 36	7 19	10 15
3	F	4 25	7 31	11 11	4 30	7 26	11 6	4 36	7 20	11 1
4	S	4 24	7 32	11 49	4 30	7 26	11 46	4 35	7 21	11 42
5	S	4 24	7 32	morn	4 29	7 27	morn	4 35	7 21	morn
6	M	4 24	7 33	0 26	4 29	7 28	0 23	4 35	7 22	0 20
7	T	4 23	7 33	0 59	4 29	7 28	0 57	4 34	7 23	0 55
8	W	4 23	7 34	1 29	4 29	7 29	1 29	4 34	7 23	1 28
9	T	4 23	7 35	1 59	4 28	7 30	2 6	4 34	7 24	2 0
10	F	4 23	7 36	2 31	4 28	7 30	2 33	4 34	7 24	2 35
11	S	4 22	7 36	3 07	4 28	7 31	3 9	4 34	7 25	3 12
12	S	4 22	7 37	3 45	4 28	7 31	3 48	4 34	7 25	3 53
13	M	4 22	7 37	rises	4 28	7 32	rises	4 34	7 26	rises
14	T	4 22	7 38	8 54	4 28	7 32	8 49	4 34	7 26	8 43
15	W	4 22	7 38	9 47	4 28	7 32	9 42	4 34	7 26	9 37
16	T	4 22	7 38	10 32	4 28	7 33	10 28	4 34	7 27	10 23
17	F	4 22	7 39	11 9	4 28	7 33	11 5	4 34	7 27	11 2
18	S	4 22	7 39	11 41	4 28	7 33	11 38	4 34	7 28	11 35
19	S	4 22	7 39	morn	4 28	7 34	morn	4 34	7 28	morn
20	M	4 23	7 40	0 7	4 29	7 34	0 6	4 34	7 28	0 4
21	T	4 23	7 40	0 33	4 29	7 34	0 32	4 34	7 28	0 31
22	W	4 23	7 40	0 57	4 29	7 34	0 58	4 35	7 28	0 58
23	T	4 23	7 40	1 22	4 29	7 34	1 23	4 35	7 29	1 24
24	F	4 23	7 40	1 47	4 29	7 35	1 49	4 35	7 29	1 52
25	S	4 24	7 41	2 16	4 30	7 35	2 19	4 35	7 29	2 23
26	S	4 24	7 41	2 49	4 30	7 35	2 53	4 36	7 29	2 57
27	M	4 24	7 41	3 27	4 30	7 35	3 32	4 36	7 29	3 36
28	T	4 25	7 40	sets	4 29	7 35	sets	4 37	7 29	sets
29	W	4 25	7 40	8 21	4 29	7 35	8 16	4 37	7 29	8 11
30	T	4 26	7 40	9 10	4 29	7 35	9 5	4 37	7 29	9 6

PHASES OF THE MOON

MOON.		BOSTON.	N. YORK.	WASH'N.	CHA'STON	CHICAGO.
	D.	H. M.	H. M.	H. M.	H. M.	H. M.
1st Quart..	6	6 32 ev.	6 20 ev.	6 8 ev.	5 56 ev.	5 26 ev.
Full.....	13	9 3 m.	8 51 m.	8 39 m.	8 27 m.	7 57 m.
3d Quart...	20	4 59 ev.	4 48 ev.	4 36 ev.	4 14 ev.	3 44 ev.
New Moon	28	6 49 ev.	6 37 ev.	6 25 ev.	6 13 ev.	5 43 ev.

AMERICAN AGRICULTURIST.

NEW YORK, JUNE, 1870.

Farmers who have their work properly planned and laid out, will find little time for reading. We would remind those who look to us for hints, that the moist and fertile soil, as it warms under the summer sun, will give life to thousands of weeds, which must be despatched *now*, in their seed-leaf and tender beginning, or day by day the labor of subduing them will be increased. Procure early, suitable implements for all farm work, and keep tools sharp and clean. Sets of duplicate tools to supply the places of those particularly liable to be broken are of great service.

Hints About Work.

Clean out the Barns.—This is the only time in the whole year when the barns may be emptied of every thing. It is barn-cleaning time as much as April is house-cleaning time. If you have several tons of old hay, let it alone—but if the mows and bays are pretty low, make a clean sweep, and see the poles and timbers everywhere. Most of the stock are then in the pastures, and stable floors can be lifted and examined. Timbers may be decaying, and should be renewed. Accumulations will almost surely be found under the floors and near the timbers which may soon cause decay unless removed, and which will be valuable additions to the compost heap. Soon the hay will be coming in; and so this work must be done betimes. Store old hay and straw where they can be conveniently got at after the barns are full.

Rainy-day Work.—Other work for rainy days is mending rakes, horse-rakes, and forks—fitting up the hay-rigging for the waggons; examining and putting the mowing machines in order. The clover will be fit to cut before we are ready for it—it almost always is.

Compost for Grass Land.—As soon as the hay is off, is the best time to put on manure. A good fine compost containing, say, six loads of yard manure and ten of muck to the acre, with a few bushels of ashes and some plaster, having been wetted a few times with barn-yard liquor and turned and mixed well, will make the second crop of clover fairly jump, and produce good rowen.

Indian Corn.—It depends upon the weather of the last of May whether we are able to get the bulk of the corn crop well planted and hoed once before this month comes in. In fact, half the crop is often planted in June. It never begins to grow much until *hot* weather; and so the first week in June is not too late for a good crop. Use early sorts so as to avoid damage from early frosts. Soak corn for late planting, tar it, and roll in plaster. Hoe as far as possible with horse-power, employing boys to go through and hand-pull weeds. Horse-hoes for two horses, having a seat for the driver, make this labor comparatively light; the work is much better done than formerly, and corn may be oftener tilled.

Potatoes are greatly benefited by stirring and loosening the soil between the rows. Hilling should never be done after the plant is 8 inches high, as it causes additional tuber-bearing roots to be thrown out, and hence two or more crops of potatoes of inferior size. Take out grass and weeds close to the plants by hand.

Pasture-land.—Top-dress with plaster, leached or quick ashes, bone-dust, or any hand manure. Bone-dust 2 bushels, wood-ashes (quick) 4 to 6 bushels, plaster 1 bushel, makes an admirable top-dressing for any kind of grass land. It is excellent also for potatoes and for corn. If it stand three weeks, and is well shoveled over two or three times, it is much improved. Take the stock off top-dressed land until after a soaking rain.

Mowing-land.—Early in the month go through the grass after a rain, and pull docks and other coarse weeds. Only a careful *man* should be trusted to do this work; boys are not careful enough nor strong enough; and with the best will, will tug and strain at a big root and trample down a square yard of grass. Begin mowing as soon as the clover blossoms, and before the ox-eyes are out. When the latter abound, the grass should be cut before they come into full blossom, as fewer seeds will mature, and the hay from them will be much better. If the weather be favorable, and the grass light, that cut with a machine after 5 P. M., may be put in windrows before 12 o'clock the next day, and got in the same afternoon, without turning or shaking out, and make almost first quality hay. Heavy clover may be cut at evening or after the dew is off in the morning, and be tossed and tedded constantly until it can be raked up, say 2 o'clock, then put in cocks; shaken out by 9 or 10 the next day, tossed and turned repeatedly, and secured in the afternoon. Clover hay ought not to be too dry, and should either be cured in masses or kept warm either by its own heat, which is apt to go too far, or by constant airing and sunning. In "catching weather"

Hay Caps are often exceedingly useful, paying for themselves by shielding the hay from a single storm. The best size is probably 4½ feet square.

Salting Hay.—Six quarts of fine salt to the ton are about right, and will go far towards preventing musty mows. If the hay (clover) is very green, 12 quarts to half a bushel are sometimes applied. This may be, however, too much for the good of the stock, unless they have other hay at the same time.

Mowing Machines and horse-rakes are indispensable adjuncts to meadow farming. The horse-fork is nearly as important, and the Tedder is fast asserting its claims. Bullard's tedders of this season, we think, surpass those previously introduced in strength, handiness, and ease of draft.

Field Beans.—Get them in as early as the ground can be well prepared. The Marrow is the favorite kind in market. The Blue-pod does better for later planting; and where corn has missed, or as a "stolen crop" with corn. The little Pea-bean is always salable. See Basket item for quantity of seed per acre of each kind.

Pumpkin and Squash seed may be planted early in the month, best by themselves; but if among corn, give a little extra manure.

Corn Fodder.—Sow as directed in last month's Basket for succession of green forage or for drying.

Forage Crops.—Nothing produces better green or dry fodder than Indian corn; but this requires a soil in good heart. Millet or Hungarian grass may be sown upon light, clean land, with a dressing of

fine manure, guano, or superphosphate. They do best in drills, but are usually sown broadcast, grow rapidly, and if put in as late as July 1st, will make a heavy crop of hay. Half a bushel of seed (20 to 24 pounds) of Hungarian grass is enough for an acre.

Peas for Seed.—Sow early in the month in good soil not freshly manured; the seed will be less in quantity than if earlier, but free from weevil.

Clover for Seed.—Cut clean clover early from which a crop of seed is desired, and top-dress with plaster or superphosphate, which always contains plaster. (The seed comes from the second crop.)

Roots.—Carrots and Parsnips may be sown this late; the former will make a good crop, the latter a fair one. Beets, (Mangels or Sugar) will also give, in rich soil, a remunerative return for labor. Swedish Turnips for cattle should be sown this month; but if intended for market and the table, it is better to wait until the 1st to 20th of July. A good superphosphate is the best manure for turnips; it may, conveniently, be sowed in the drills, after the ground is marked out, with the seed sower, which, immediately after, is used for sowing the seed. Use as little seed as possible in sowing Swedes, and put the drills 30 inches apart, and thin to a foot.

Tobacco.—Weed the seed-beds, and see to it that you have plants forward enough to commence setting about the 15th. Plow and harrow the field, and kill another crop of weeds just before setting; mark off as for corn-planting 3 feet each way; or, the rows 3 feet, and the cross marks for the plants 30 inches apart. Replace at once plants cut off by the worm, or failing from other causes.

Cattle at pasture must be visited frequently, and a lookout kept lest the water fails, or the grass is cropped too close.

Working Oxen should not be hard pressed during the middle of the day when the heat is excessive.

Cows should have good upland pasturage, and plenty of water. An armful of some green forage at noon, even when they have an abundance of grass, will be eaten with a relish, and if given regularly, will considerably increase the flow of milk.

Calves two or three months old may be turned to grass, getting a few quarts of skimmed milk daily at noon, which will be all the better for them if thickened with a little Indian meal.

Beef Cattle should have the richest clover pasturage, and two feeds of meal a day besides, if they will eat it. The quicker they fatten the better.

Mares about to foal, or with foals at foot, should have the range of sweet upland pastures, with water and salt. Take a mare which is to breed the coming year to the stallion on the 9th day after foaling.

Sheep are generally washed and shorn this month. We deprecate washing, though it seems almost necessary. A little practice and care in tub-washing fleeces would, we are confident, do away with objections to tub-washed wool; and if washing the sheep could be avoided, their health, and of course the quality of the wool, would be improved. Grease newly shorn sheep on the back to prevent sun-scalding.

Butter.—The Prize Essay on another page makes it unnecessary to drop hints here about butter making. June butter ought to be the best made in the year, as the grass has a higher and better flavor.

Work in the Horticultural Departments.

With so many things calling us outside, we can hardly have patience this bright May day to write about work, we much prefer to do it. Such a rush has been the early part of May. The season seems to have forgotten all moderation, and come upon us with a leap. We have had the impression that whether spring seemed early or late, everything came out about the same, the first of June.

Orchard and Nursery.

With established trees, the chief things to do are to thin the fruit and keep the insects in check.

Thinning is too little practised; but one who tries it once will be apt to follow it, if he raises good fruit. When the fruit is fairly set, thin out one-third or one-half. The nutriment that would have been divided among all, had they remained, will now be appropriated by only half as many, and the result will be fine, large specimens. It may be necessary to make a second thinning, as few have courage to thin sufficiently at first. As to

Insects, do not wait until some of the legion have made sad havoc, and then write to us for a remedy which shall despatch them at one application. We know of no sovereign cure for insects or weeds except work. One should be among his trees frequently, and note the first inroads. The eye should be trained to notice the beginning of trouble. The caterpillars that are to-day feeding upon the leaves of one twig only, in a week will have scattered over the whole tree. Neglect the little web that is just observable, and in a short time the tree will look as if a blight had fallen upon it. The nests of the tent-caterpillar are easily pulled out by a gloved or bare hand. Take them early in the morning when the inhabitants are at home.

The Curculio is only to be caught by jarring the tree. It will fall and may be caught on a sheet. Let all secret insect remedies alone.

Borers.—We are accustomed to speak of "the borer," when there are several, but they are all alike in being hatched from eggs laid upon the bark of the tree by the mother insect. The eggs are usually deposited this month; various obstacles to the insect have been proposed; about the simplest of them is to wrap the lower part of the trunk of the tree with coarse paper, the lower edge of the paper going just below the surface of the soil, and the other extending about a foot above it.

Slugs which attack the leaves of pear and cherry trees are destroyed by a dusting of lime.

Grafts must be looked after. If two were put in where but one is needed, cut one out. If the growth of the graft is one-sided, or one of its several shoots gets the better of the others, pinch the end of the strong grower.

Pruning is done this month by many, as the wounds heal most readily. Others object to any other than winter pruning, on account of the check to the tree by removing so much foliage.

Young Trees.—Attention to young trees will avoid the necessity of pruning large limbs hereafter. Shoots will become branches; if they grow where branches are not needed, remove them while young; better to have done it when the bud was first pushing, but if done while the wood is still tender, it will save much cutting. It will be a great help to young trees to mulch them with litter of some kind.

Pinching.—The nipping of the growing point of a tender shoot, of course stops it from prolonging. One of its upper buds will probably push again; but the growth will be checked, neighboring and weaker shoots will have a chance to grow, and thus control the growth and shape of the young tree.

Seedlings.—Keep young seedling trees well weeded and cultivated. Shade young evergreens and deciduous forest trees.

Fruit Garden.

Grape-Vines.—Vines planted this spring should have but one shoot allowed to grow. Tie up the young shoots, handling carefully to avoid breaking. If too much fruit is left upon the vines, thin early. As the laterals push, pinch back to one leaf. Layers may be made of the present season's growth.—Use the hoe around the vines, and hand-pick beetles and caterpillars. Use sulphur, applied by a bellows, on the first appearance of mildew.

Strawberries.—Upon beds not covered, put on a mulch to keep the fruit clean, unless the vines are grown in matted beds, when it is not necessary; straw, hay, or corn-stalks are used. In marketing berries give full measure, and let the baskets run of even quality throughout. Reject all sandy or over-ripe berries. Make pot-layers which may be planted as soon as well rooted; they will bear next year.

Currants.—Use powdered white hellebore for insects which attack the leaves. Mulching will increase the size of the fruit. Remove superfluous shoots and thus save pruning.

Gooseberries are usually marketed green. They are most expeditiously cleaned from leaves and sticks by allowing them to roll down an inclined trough.

Raspberries.—Tie up the new growth, three or four canes to a stool, and remove all others.

Blackberries.—Stop the growth of new canes when 4 or 5 feet high. Tie up fruiting canes. Hoe up all suckers not needed for planting.

Dwarf Fruit Trees will need the attention in thinning, pinching, and keeping free of insects as noted for trees in the orchard.

Kitchen Garden.

The contest with weeds must be kept up. It makes a great difference which gets the advantage of the start. The ease with which weeds can be destroyed in their young state, is in marked contrast with their persistence when of larger size.—Much weed killing can be done with a rake. Have one with sharp, steel teeth, and use it frequently. We use Comstock's hand cultivator with much satisfaction.

Asparagus.—Many forget that next season's crop depends upon a good growth of tops after cutting stops. Do not cut too late. Hoe over the bed and it will be all the better if a dressing of bone or phosphate can be given.

Beans.—Bush and running varieties may still be planted. For Limas, set poles 6 or 8 feet high, 4 feet each way, and make a rich spot to receive the beans. Plant 5 or 6 beans, by pushing them into the ground eye downward, and covering about an inch. Leave 4 plants to a pole, and twine them about it if they do not climb of their own accord.

Beets.—Weed and thin. We always sow rather thickly in order to have a plenty of young beets to use as spinach.

Cabbages and *Cauliflowers.*—Early sorts will now be ready for the table or market. Transplant second early, and sow late varieties.

Carrots.—Keep well cultivated. Sow seed.

Celery.—Take good care of the plants in seed-bed and keep free from weeds. See article on page 221.

Corn.—Sow every week or two for succession.—The late sowings should be of early kinds.

Capsicums or *Peppers.*—Give a warm rich place, and cultivate frequently.

Cucumbers.—Sow seed in rich hills 4 feet apart, using plenty of seed to guard against loss by bugs. When past danger take out all the plants but two.

Egg-Plants.—These need all the encouragement that frequent hoeing and liquid manure can give them. The Tomato-worm is fond of them.

Lettuce.—Sow for late supply, selecting a somewhat shaded and moist spot. See article on culture, last month.

Melons need the same care as cucumbers.

Onions.—Thorough weeding and frequent cultivation between the rows are essential to success.—Salt sown broadcast at the rate of 2 or 3 bushels to the acre is beneficial, as are dressings of wood-ashes.

Parsnips need working until the leaves prevent.

Peas.—Plant for late crop if you choose to run the risk of mildew.

Radishes.—Sow now and then for succession.

Rhubarb.—Keep the flower-stalks cut off, as they needlessly exhaust the plants.

Ruta-bagas.—The variety known as the Long White French cannot be too highly commended for family use. Sow the latter part of the month; and if insects trouble the young plants, dust with ashes or plaster.

Spinach.—Sow the New-Zealand for summer use, three or four plants to a hill, which should be rich, and about 6 feet apart, as the plant spreads.

Salsify.—Sow if not already done, and cultivate the same as parsnips.

Squashes.—See last month's notes for directions.

Sweet Potatoes.—In most northern localities the

first week in June is early enough to set the plants. See notes and page 175 last month.

Tomatoes.—As the vines grow, keep tied up to a trellis, or place brush to keep them from the ground.

Flower-Garden and Lawn.

Lawns.—Mow often and leave the clippings on the grass. A few hours of sun make them invisible, and they serve both as mulch and manure.

Bedding Plants will now need attention. Keep the weeds down until the plants cover the beds.

Annuals may be transplanted and seed be sown.

Tuberoses need a warm and rich spot. Plants that have been started under glass may be obtained and will grow rapidly.

Bulbs.—Do not remove the leaves from those that have passed out of flower until they begin to turn yellow. Take up Hyacinths, Tulips, Narcissuses as soon as the failure of the leaves shows that the growth is over. Spread under cover until the leaves are dry, and then store in a cool and dry place until time to plant in the fall.

Roses.—When the Remontants pass out of flower, cut them back. Remove the remains of the flowers of the Ever-blooming varieties. Shake off rose-bugs.

Neatness is secured by constant attention to little things. Keep straggling plants tied up. Remove unsightly flower-stalks unless seeds are wanted.—Rake off remains of flowers and dead leaves. Clip or pinch shrubs disposed to grow out of shape.

Green-house and Window Plants.

These will likely all be out of doors, and they must be disposed of according to their needs.—Some may be set in full sun, while Fuchsias, Camellias and other broad-leaved evergreens need a partial shade. Some may be disposed of as ornaments to the veranda, while others may be plunged in the borders. Place a little coal-ashes under plunged plants to keep worms from entering. The earth in the pots dries rapidly, and care must be taken that they do not suffer for want of water. The pots containing tall plants should be protected from strong winds. Procure sods for potting soil, and look after supplies of manure.

Lightning-Rods.

The peeping of frogs is no surer indication of the opening of spring, than is the appearance of the lightning-rod peddlers. There may be some respectable men engaged in hawking about lightning-rods, but most we have met are unmitigated nuisances. Our letters indicate that many of them are swindlers, and that when one gets a chance at a house, the owner is made to pay roundly. There has been so much that is unpleasant and suspicions attached to the lightning-rod business, that some whose opinions are regarded as authority, have asserted that all lightning-rods are humbugs. We cannot agree with this view, but think that a properly constructed rod is a protection. There are many cases in which buildings furnished with rods have been injured by lightning; this is no testimony against lightning-rods in general, but only against those particular pieces of work. The kinds of rod offered for sale are numerous; and by twists and other externals are made to look very unlike. The cheapest material is iron; copper is a better conductor, but its expensiveness leads to the use of a larger rod of iron. A solid iron rod ¾ of an inch in diameter, is found to be best and cheapest. It should be as continuous as possible, using screw couplings where the lengths cannot be welded. The rod may be painted black as a protection against rust. Iron fastenings are as good as the glass insulators, sometimes used. When glass is wet, the insulating power is destroyed. The upper end should terminate in one or more platinum points. Merely covering with gold-leaf is a poor protection against rusting. The lower end of the rod should terminate in permanently moist ground. All the better if it can terminate in a well, below the lowest point the water ever reaches. In cities, the lower end of the rod may connect with the main gas or water pipes. A tin or other metallic roof should be connected with the rod. The number of rods required will depend upon the size of the surface to be protected; the rule given by electricians is, that a rod will protect a space around in every direction from its base equal to twice its hight. In practice we believe rods are put nearer together than this rule would require. There are no objections, save those of expense and appearance, to having any number of rods, provided they are properly constructed. We have given what are considered by the best authorities the essential requisites in a lightning-rod. The various "improvements" which have been patented from time to time are not considered to be of practical importance. We believe that our best constructors of rods do not claim to have any patent about the matter. If some one would make and advertise platinum points, any person could put up his own rod, with the aid of a blacksmith.

Commercial Matters—Market Prices.

The following condensed, comprehensive tables, carefully prepared specially for the *American Agriculturist*, show at a glance the transactions for the month ending May 13, 1870, and for the corresponding month last year.

1. TRANSACTIONS AT THE NEW YORK MARKETS.

RECEIPTS.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
25 days *this* m'th.	231,000	986,000	243,500	12,500	139,000	230,000
27 days *last* m'th.	221,500	478,000	153,000	2,650	313,000	217,000

SALES.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
25 days *this* m'th.	243,000	2,414,000	1,170,000	26,000	154,000	1,206,000
27 days *last* m'th.	216,000	1,485,000	897,000	18,500	321,000	659,000

2. *Comparison with same period at this time last year.*

RECEIPTS.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
25 days 1870	231,000	986,000	243,500	12,500	139,000	230,000
26 days 1869	182,000	387,000	541,000	11,000	41,000	237,000

SALES.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
25 days 1870	243,000	2,414,000	1,170,000	26,000	154,000	1,206,000
26 days 1869	217,000	1,098,000	1,448,500	76,500	121,000	986,000

3. *Exports from New York, Jan. 1 to May 13:*

	Flour.	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
1870	570,343	3,993,275	103,646	6,703	——	9,103
1869	337,389	2,613,860	1,173,235	——	——	39,583
1868	319,202	1,708,175	2,909,014	153,093	——	36,469

4. *Stock of grain in store at New York:*

1870.	*Wheat,* bush.	*Corn,* bush.	*Rye,* bush.	*Barley,* bush.	*Oats,* bush.	*Malt,* bush.
May 10	1,158,052	110,829	20,502	126,043	410,517	83,000
April 11	1,845,186	285,946	23,249	187,172	756,811	99,988
March 7	2,509,608	484,176	39,089	278,905	1,105,194	97,139
Feb. 11	2,902,638	531,063	62,112	322,125	1,199,672	36,214
Jan. 12	1,423,028	591,903	38,289	34,900	1,310,935	85,405
1869.						
Dec. 11	3,810,562	833,909	50,043	285,906	1,386,594	77,097
Nov. 10	1,616,050	693,085	31,700	31,584	281,581	66,782
Oct. 11	978,272	445,068	34,467	5,918	120,950	67,094
Sept. 6	745,121	127,736	56,081	——	183,920	134,870
Aug. 9	634,262	253,155	75,797	361	50,219	105,358
July 10	531,657	328,613	71,418	2,966	259,965	97,177
June 7	637,877	385,241	107,546	383	555,893	109,716
May 11	1,056,018	394,156	107,502	17,684	613,166	77,677
Apr. 10	1,684,633	1,080,769	165,008	48,281	1,178,710	66,664

CURRENT WHOLESALE PRICES.

	April 14.	May 13.
PRICE OF GOLD	112⅝	114¾
FLOUR—Super to Extra State	$4 30 @ 5 45	$4 90 @ 5 90
Super to Extra Southern	5 25 @ 9 75	6 25 @ 10 00
Extra Western	4 55 @ 9 25	5 25 @ 9 75
Extra Genesee	5 75 @ 7 25	6 00 @ 8 00
Superfine Western	4 30 @ 4 50	4 90 @ 5 20
RYE FLOUR	3 90 @ 5 00	4 50 @ 5 65
CORN-MEAL	4 30 @ 5 25	4 75 @ 5 80
WHEAT—All kinds of White	1 27½@ 1 60	1 35 @ 1 85
All kinds of Red and Amber	95 @ 1 25	1 00 @ 1 36
CORN—Yellow	1 08 @ 1 10	1 17 @ 1 20
Mixed	90 @ 1 10	1 04 @ 1 17
OATS—Western	67 @ 68	64½@ 70
State	64 @ 68	69 @ 70
RYE	95 @ 1 10	1 03 @ 1 14
BARLEY	70 @ 1 10	70 @ 95
HAY—Bale ₱ 100 lb	80 @ 1 15	90 @ 1 25
STRAW, ₱ 100 lb	65 @ 1 00	60 @ 1 00
COTTON—Middlings, ₱ lb	23¾@ 24¼	23½@ 24¼
HOPS—Crop of 1869, ₱ lb	10 @ 25	10 @ 25
FEATHERS—Live Geese, ₱ lb	80 @ 85	80 @ 85
SEED—Clover, ₱ lb	14¼@ 14¾	14 @ 14¾
Timothy, ₱ bushel	6 25 @ 6 75	7 50 @ 8 00
Flax, ₱ bushel	2 10 @ 2 20	2 15 @ 2 25
SUGAR—Brown, ₱ lb	8 @ 11¼	8 @ 11¼
MOLASSES, Cuba, ₱ gal	20 @ 45	20 @ 45
COFFEE—Rio, (Gold, in bond)	9¾@ 18½	10 @ 14
TOBACCO, Kentucky, &c., ₱ lb	7 @ 13½	6 @ 13
Seed Leaf, ₱ lb	8 @ 65	8 @ 70
WOOL—Domestic Fleece, ₱ lb	42 @ 66	40 @ 63
Domestic, pulled, ₱ lb	22 @ 46	20 @ 47
California, unwashed	15 @ 32	15 @ 29
TALLOW, ₱ lb	9¼@ 9⅝	9¼@ 9¾
OIL-CAKE—₱ ton	35 00 @39 00	39 00 @40 00
PORK—Mess, ₱ barrel	27 75 @28 00	29 12 @29 50
Prime, ₱ barrel	20 50 @21 50	22 00 @23 50
BEEF—Plain mess	8 00 @14 00	10 00 @18 50
LARD, in trcs. & barrels, ₱ lb	14¼@ 16½	15 @ 17
BUTTER—Western, ₱ lb	15 @ 28	20 @ 33
State, ₱ lb	18 @ 38	20 @ 38
CHEESE	6 @ 16½	6 @ 17½
BEANS—₱ bushel	1 20 @ 2 40	1 20 @ 2 50
PEAS—Canada, in bond, ₱ bu	1 10 @ 1 25	97 @ 1 00
EGGS—Fresh, ₱ dozen	27 @ 29	16 @ 18¼
POULTRY—Fowls & Chickens	21 @ 24	20 @ 21
Turkeys, ₱ lb	26 @ 29	21 @ 22
Geese, ₱ lb	16 @ 18	15 @ 18
POTATOES, ₱ bbl	1 25 @ 2 00	1 00 @ 2 00
New Bermudas, ₱ bbl	8 50 @10 00	7 00 @ 8 00
APPLES—₱ barrel	3 00 @ 5 25	1 50 @ 4 50
SWEET POTATOES, ₱ bbl	— @ —	— @ —
TURNIPS—₱ bbl	1 50 @ 2 00	— @ —
CABBAGES—₱ 100	6 00 @10 00	7 00 @10 00
ONIONS—₱ bbl	4 50 @ 5 50	4 00 @ 7 00
CRANBERRIES—₱ bbl	16 00 @22 00	— @ —
BROOM-CORN—₱ lb	11 @ 15	10 @ 14
Tomatoes, new, per box	— @ —	75 @ 1 00
Peas, green, per crate	— @ —	1 50 @ 3 00
Rhubarb, per 100 bunches	— @ —	2 50 @ 4 50
Asparagus, per bunch	— @ —	25 @ 40

Gold has been in more active, speculative demand and has advanced.....There has been more inquiry for the leading kinds of Breadstuffs, the offerings of which have been less extensive, and prices have been quoted firmer. .....Provisions have been more sought after at higher rates, but close less buoyantly.....Cotton has been in active request, and has been quoted dearer.....Wool has been very slow of sale, though buyers have had every existing advantage as to price.....Tobacco, Hay, and Seeds have been in fair demand; Grass seeds have been much firmer.....Hops have been quiet, but steady.

New York Live-Stock Markets.—

WEEK ENDING.	*Beeves.*	*Cows.*	*Calves.*	*Sheep.*	*Swine.*	*Tot'l.*
April 18th	5,778	123	2,459	17,361	10,171	35,892
do. 26th	6,003	68	3,569	13,432	12,730	35,802
May 3d	6,416	74	4,813	11,434	15,197	37,934
do. 10th	6,924	66	4,083	15,346	18,985	45,404
Total in 4 Weeks	25,121	331	14,924	57,573	57,083	155,032
do. *for prev. 4 Weeks*	22,325	532	5,835	63,021	42,579	134,282

	Beeves.	*Cows.*	*Calves.*	*Sheep.*	*Swine.*
Average per Week	6,280	84	3,731	14,393	14,271
do. do. *last Month*	5,581	133	1,459	15,755	10,645
do. do. *prev's Month*	6,069	130	790	25,202	13,785
Average per Week, 1869	6,275	92	1,752	28,836	15,348
do. do. do. 1868	5,733	105	1,588	27,182	18,809
do. do. do. 1867	5,544	64	1,320	22,154	20,605
do. do. do. 1866	5,748	94	1,200	20,000	18,000
do. do. do. 1865	5,255	118	1,500	16,091	11,023
Total in 1869	326,280	4,827	91,083	1,499,509	798,199
Total in 1868	298,128	5,466	82,571	1,413,479	978,661
Total in 1867	293,832	3,369	69,911	1,174,154	1,102,643
Total in 1866	298,880	4,885	62,420	1,040,000	672,000
Total in 1865	270,271	6,164	77,991	836,733	573,190
Total in 1864	267,609	7,603	75,621	782,462	660,277

Beef Cattle.—The supply of stock has been a little larger for the past month and of better quality. The prices paid range about as those given for last month, and the market is firm. We notice some few early "grass" beeves in market. They look plump, but butchers are rather shy of such stock. Early "grass" beef is apt to dress light, and some butchers found their stock to have cost as high as 19c. per pound. Prices run very even; 17½ being the top of the market for best grades. Some few extras brought 18c., but the majority of good cattle brought only 17c. per pound. The quality has so much improved in the past week or two that few sales are made below 13c., and these for bulls and cows. There has been some call for working cattle, but none were on sale. Below we give the range of prices, average price, and figures at which the largest lots were sold.

Apr. 18, ranged	12¾@17½c.	Av. 15¼c.	Large sales 14¼@16
do. 26th, do.	13½@17½c.	do. 15½c.	do. 15 @16¼
May 3d, do.	13 @18c.	do. 16 c.	do. do. 15¾@17
do. 10th, do.	13 @17½c.	do. 16 c.	do. do. 15½@16¼

Milch Cows.—The arrivals have been rather small, and prices a little better. Milkmen are ready to pay $90@$100 for a good fresh cow, and even those of only medium quality bring good prices. Some fancy stock was sold as high as $110@$120 during the past month, but these were very extra cows. Prices may be quoted as $90@$100 for good, $80@$90 for medium, and less for poor cows.....**Calves** have been plenty and cheap this month, and prices have gone down proportionally, and the market rather dull. Good, fat calves may be had at from 9c.@10c., if very extra 10¼ will be paid. Medium quality bring 8c.@8¾c., and buttermilk fed 6c.@7c., per pound.....**Sheep.**—There has been but little change since our last report. The quality of the stock offered is a little improved, and prices about the same. More sheep are coming in, minus their wool, and sell readily. Prices range from 5½c.@8c., with some very extra selling for 8½c. per pound. Spring Lambs are beginning to come in quite plenty, and go quickly at about 15c.@18c. per pound.....**Swine.**—The trade keeps steady, and we note but little change. Almost all the hogs go direct to the slaughter-pens. We quote dressed hogs at from 11½c.@12c. per pound.

Draining Ponds.—A farmer in Ohio has a farm with several ponds on it. He wishes to drain them, and the low land adjoining, with tiles, and wants to know what size of tiles will be needed, and whether he should put boards under the tiles; also whether it would not be well to dig a hole in the center of the ponds three or four feet deep, stone them up and have the drains run through them.—If the ground is firm, no boards are needed under pipe tiles. If the drains run through the ponds, three or four feet below the surface, and are covered with nothing but soil rammed in tight, they will work well and take off all the water they can carry. He need have no fears but that the water will find its way into the drain. Stones on the top of a tile-drain do more harm than good. We cannot tell the size of the tiles required. A common mistake is, to use too small tiles for the main drains and too large for the sub-drains. If cut in the spring, when the ponds are full of water, there will of course be more water for the drains to discharge, at first, than they will ever be required to carry again. We think the better plan would be, to first cut open ditches and let them remain open for a few weeks; and then, by putting single tiles of different sizes in the ditch, and ramming some clay on the sides to force all the water through the tiles, one can easily ascertain what sized tiles are required. The quantity of water a tile will carry off is surprising. A two-inch tile will carry off about 4 times as much as an inch-tile, and a three-inch about 9 times as much, and a five-inch about 25 times as much.

AMERICAN AGRICULTURIST.

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26 26

TWENTY-SIX DAYS.

26 26

TWENTY-SIX WORKING DAYS will close the first half of 1870, and on *Thursday*, **June 30th,** we propose to withdraw our *general* offer of Premiums for this volume.

The above announcement is of special interest to two *classes which embrace* **all** OUR READERS.

THE FIRST CLASS, includes all those who have begun to make up lists of Subscribers to secure our Premiums. In almost every case a little vigorous effort, during the next 26 days, will fill up the list, or at least make it large enough to secure *some one* of the Premiums. For example, suppose one has been trying to get a Sewing Machine, and has sent more or less names for that premium. If enough names have not, and can not, be obtained for that, the names may apply on a list for a smaller premium. So we say, in all cases, get every subscriber possible this month, and then choose such a premium as the list actually obtained will call for. *We are anxious to have every one rewarded for all he or she has accomplished, whether it will be for our profit or not.*——**N. B.**—A great deal may be done during June in the way of getting subscribers, as noted below.

☞ THE SECOND CLASS takes in **Every one of our Readers** not included in the first class above. In the next column is a table of first-rate articles, offered to all those who secure the required number of subscribers, as noted against each article, AND many hundreds, yes **many** THOUSANDS, (**you** among the number) may easily collect names of subscribers enough during June, to secure the *free* reception of one or more of these valuable premiums. During every month of June, for many years past, a great number of persons have begun and completed just such lists, and obtained valuable premiums. Suppose **you** try it this month. One, two, or three subscribers a day, or evening, during the next 26 days, will procure a *large* premium. One subscriber only for every two, three, or four days or evenings, will secure a very good article. Run through the list and see what is offered.

Two "Remarks."

☞ 1st.—Two subscribers for the remaining half of this year will count in a premium list the same as one subscriber for the whole year.

☞ 2nd.—Persons too distant to respond before July 1st, may have sufficient time to do it after that date.

☞ **Now Then,** who will take Premiums this month? *Everybody can find subscribers enough to get at least a small but valuable premium!*

[In the following table is given the price of each article, and the number of subscribers required to get it free, at $1.50 a year, *or* at the lowest club rate of $1 a year. For full descriptions of the articles send for our *Special Sheet.*]

Table of Premiums and Terms, For Volume 29—(1870).

Open to all—No Competition.

No.	Names of Premium Articles.	Price of Premiums.	Number of Subscribers required at $1.50	Number of Subscribers required at $1.
1	*Shorthorn Bull*	$500 00	425	1250
2	*Shorthorn Bull*	$900 00	500	1300
3	*Shorthorn Bull*	$700 00	580	1700
5	*Ayrshire Bull*	$150 00	165	500
6	*Ayrshire Bull*	$200 00	210	650
7	*Alderney Bull*	$200 00	210	650
8	*Alderney Bull*	$300 00	300	900
9	*Alderney Bull*	$400 00	365	1050
10	*Devon Bull*	$100 00	120	350
11	*Devon Bull*	$150 00	165	500
12	*Devon Bull*	$200 00	210	650
13	*Cotswold Ram*	$100 00	120	350
14	*Cotswold Ram*	$200 00	210	650
15	*Cotswold Ewe*	$100 00	120	350
16	*Cotswold Ewe*	$150 00	165	500
17	*Southdown Ram*	$100 00	120	350
18	*Southdown Ram*	$150 00	165	500
19	*Southdown Ewe*	$75 00	100	285
20	*Southdown Ewe*	$100 00	120	350
21	*Chester White Pig*	$30 00	46	150
22	*Essex Pig*	$50 00	66	225
24	*Houdan Fowls, one Pair*	$10 00	50	150
25	*Crevc Cœur Fowls, one Pair*	$40 00	50	150
26	*Black Spanish Fowls, one Pair*	$20 00	30	97
27	*Brahmas, Light, one Pair*	$15 00	22	75
28	*Gold Laced Sebright Bantams, one Pair*	$15 00	22	75
29	*Bresee's King of the Earlies, (2 lb. pare.)*	$2 00	5	22
30	*Norway Oats, (1 peck, Ramsdell & Co.)*	$2 75	7	27
31	*Garden Seeds for a Family (40 kinds)*	$5 00	13	37
32	*Flower Seeds for a Family (100 kinds).*	$5 00	13	37
33	*Garden Seeds & Flower Bulbs (Selection)*	$2 00	5	22
34	*Nursery Stock (any kinds desired)*	$20 00	30	97
35	*Set of Field Croquet*	$8 00	16	52
36	*Sewing Machine (Grover & Baker)*	$55 00	60	240
37	*Sewing Machine (Florence)*	$68 00	70	275
38	*Sewing Machine (Wilcox & Gibbs)*	$55 00	60	240
39	*Lamb Knitting Machine*	$60 00	67	270
40	*Washing Machine (Doty's)*	$14 00	21	70
41	*Clothes Wringer (Best—Universal)*	$10 00	18	58
42	*Tea Set (Hart's best Silver Plated)*	$50 00	66	225
43	*Caster and Fruit Basket (do. do.)*	$30 00	44	140
44	*Cake Basket (do. do.)*	$12 00	19	65
45	*Revolving Butter Cooler (do. do.)*	$8 00	16	52
46	*Ice or Water Pitcher (do. do.)*	$18 00	27	90
47	*One Dozen Tea-spoons (do. do.)*	$6 00	15	45
48	*One Dozen Table-spoons (do. do.)*	$12 00	19	65
49	*One Dozen Table Forks (do. do.)*	$12 00	19	65
50	*Knives and Forks (Patterson Bros.)*	$14 00	21	70
51	*Knives and Forks (do. do.)*	$18 50	27	90
52	*Knives and Forks (do. do.)*	$22 00	33	110
53	*Knives and Forks (do. do.)*	$25 50	39	124
54	*Carver and Fork (do. do.)*	$5 00	13	37
55	*Fluted Steel (do. do.)*	$2 50	6	25
56	*Pocket Knife (J. P. Swain)*	$1 50	4	
57	*Pocket Knife (do. do.)*	$2 00	5	22
58	*Pocket Knife (do. do.)*	$2 50	6	25
59	*Ladies' Pocket Knife (do. do.)*	$2 00	5	22
60	*Melodeon, 4-octave (G. A. Prince & Co.'s)*	$97 00	78	295
61	*Melodeon, 5-octave (do. do.)*	$112 00	138	400
62	*Piano, Splendid 7-oct. (Steinway & Sons)*	$650 00	540	1600
63	*Colibri Piano (Mathusheck P. F. Co.)*	$450 00	380	1150
64	*Silver Watch (American Watch Co.)*	$40 00	50	150
65	*Ladies' Fine Gold Watch (Am. Watch Co.)*	$100 00	110	350
66	*Breech-loading Pocket Rifle*	$16 00	24	80
67	*Double Bbl. Gun, (Cooper, Harris & H.)*	$30 00	46	150
68	*Repeating Shot Gun (Roper Sp. A. Co.)*	$75 00	92	312
69	*Tool Chest (Patterson Bros.)*	$44 50	60	190
70	*Case of Mathematical Instruments*	$9 00	18	55
71	*Case of Mathematical Instruments*	$15 00	22	75
72	*Gold Pen, Sil. Case, F, (Warren & Spadone)*	$4 50	11	35
73	*Gold Pen, and Silver Case, F, (do. do.).*	$5 50	14	42
74	*Ladies' Gold Pen and Rubber Case (do.)*	$6 00	15	45
75	*Charles Pratt's Astral Oil (1 can, 5 Gal.)*	$4 00	9	32
76	*Barometer (Woodruff's Mercurial)*	$10 00	18	58
77	*Barometer (Woodruff's Mercurial)*	$15 00	22	75
78	*Buckeye Mowing Machine, No. 2.*	$125 00	150	450
79	*Patent Cylinder Plow, (R. H. Allen & Co.)*	$18 00	27	90
80	*Collins & Co.'s Cast Cast-Steel Plow*	$25 00	38	120
81	*Hand Cultivator and Weeder (Comstock)*	$9 00	17	54
82	*Pump and Sprinkler (Page's)*	$5 00	18	37
83	*Family Scales (Fairbanks' & Co.)*	$14 00	21	70
84	*Building Blocks (Crandall)*	$2 00	6	20
85	*Pocket Lanterns, One Dozen*	$9 00	17	54
86	*New American Cyclopedia (Appleton's)*	$80 00	96	325
87	*Worcester's Great Illustrated Dictionary*	$10 00	18	58
88	*Any Back Volume Agriculturist* (Unbound, Postpaid.)	$1 75		20
89	*Any Two Back Volumes do.* (Unbound, Postpaid.)	$3 50		29
90	*Any Three do. do. do.* (Unbound, Postpaid.)	$5 25	18	38
91	*Any Four do. do. do.* (Unbound, Postpaid.)	$7 00	15	47
92	*Any Five do. do. do.* (Unbound, Postpaid.)	$8 75	17	54
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93	*Thirteen Vols. XVI. to XXVIII.* (Unbound, Postpaid.)	$22 75	33	108
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95	*Any Two Back Volumes do.* (Bound, Postpaid.)	$5 00		36
96	*Any Three do. do. do.* (Bound, Postpaid.)	$7 50	16	48
97	*Any Four do. do. do.* (Bound, Postpaid.)	$10 00	18	60
98	*Any Five do. do. do.* (Bound, Postpaid.)	$12 50	21	71
	—(Each add'l Vol. at same rate) (Bound, Postpaid.)			
99	*Thirteen Vols. XVI. to XXVIII.* (Bound, Postpaid.)	$32 50	45	187
100	*A $10 Library (Your Choice)* (All sent part through, by Mail or Express.)	$10 00	18	58
101	*A $15 Library do. ..* (All sent part through, by Mail or Express.)	$15 00	24	85
102	*A $20 Library do. ..* (All sent part through, by Mail or Express.)	$20 00	31	106
103	*A $25 Library do. ..* (All sent part through, by Mail or Express.)	$25 00	38	125
104	*A $30 Library do. ..* (All sent part through, by Mail or Express.)	$30 00	44	144
105	*A $35 Library do. ..* (All sent part through, by Mail or Express.)	$35 00	50	162
106	*A $40 Library do. ..* (All sent part through, by Mail or Express.)	$40 00	56	177
107	*A $45 Library do. ..* (All sent part through, by Mail or Express.)	$45 00	62	192
108	*A $50 Library do. ..* (All sent part through, by Mail or Express.)	$50 00	68	207
109	*A $60 Library do. ..* (All sent part through, by Mail or Express.)	$60 00	80	237
110	*A $75 Library do. ..* (All sent part through, by Mail or Express.)	$75 00	100	282
111	*A $100 Library do. ..* (All sent part through, by Mail or Express.)	100 00	125	360
112	*A Choice of Good Books (See Terms below).* (All sent part through, by Mail or Express.)	..	..	...

☞ *Every Premium article is New and of the very* **best** *manufacture. No charge is made for packing or boxing any article in our Premium List. The thirty-nine Premiums,* **Nos. 29** *to* **33, 56** *to* **59, 70** *to* **74,** *and* **88** *to* **112** *inclusive, will each be delivered* FREE *of all charges, by mail or express (at the Post-office or Express office nearest recipient), to any place in the United States or Territories. —The other articles cost the recipient only the freight after leaving the manufactory of each, by any conveyance specified.*

SPECIAL NOTES.

Read and carefully Note the following Items: (*a*) All subscribers sent by one person count, though coming from a dozen different Post-offices. But....(*b*) state with each name or list of names sent, that it is for a premium....(*c*) *Send the names as fast as obtained, that the subscribers may begin to receive the paper at once.* You can have all the present month, 26 working days, to fill up your list....(*d*) Send the exact money with each list of names, so that there may be no confusion of money accounts....(*e*) Old and new subscribers all count in premium clubs, but a portion, at least, should be new names; it is partly to get these that we offer premiums to canvassers. N.B.—The extra copy to clubs of ten or twenty is not given where premium articles are called for....(*f*) Specimen Numbers, Cards, and Show-bills, will be supplied free, as needed by canvassers, but they should be used carefully and economically, as they are very costly....(*g*) Remit money in Checks on New York Banks or Bankers, payable to order of Orange Judd & Co., or send Post-office Money Orders. If neither of these is obtainable, Register Money Letters, affixing stamps both for the postage and registry; put in the money and seal the letter in the presence of the Postmaster, and take his receipt for it. Money sent in any of the above ways is at our risk.

Description of Premiums.

Every Premium is described in the October Agriculturist, and also in a **Special Sheet,** *which will be sent* **free** *to every one desiring it. We have room here for the following only:*

No. 40.—Washing Machines.—For a long time we have annually tried many new Washing Machines, and "Doty's Paragon," which we have now used nearly five years, is the only one the "help" will use voluntarily. Send for full Descriptive Circulars to **R. C. Browing, 32 Cortlandt St., N. Y.,** or to **Metropolitan Washing Machine Co.,** Middlefield, Conn. It goes cheaply by freight or express.

No. 41—Clothes Wringing Machine.—A very useful, time-saving, strength-saving, clothes-saving implement, that should be in every family. The wringing of clothes by hand is hard upon the hands, arms, and chest; and the twisting stretches and breaks the fibres with lever power. With the Wringing Machine, the garments are passed rapidly between elastic rollers, which press the water out better than hand wringing, and as fast as one can pick up the garments. We have given thousands of these premiums, with almost universal satisfaction. They are made by the **Metropolitan Washing Machine Co.,** Middlefield, Ct.

Nos. 56, 57, 58, 59—Pocket Knives.—NOW FOR THE BOYS AND GIRLS!—These Premiums are among the most pleasing and useful that we have ever offered. Every boy, and girl, too, wants a pocket knife. We give them an opportunity to obtain a most valuable one for nothing but a little effort. These knives are made by **Mr. J. P. Swain,** whose work is equal to any done in this country or Europe. No. 56 is a neat, substantial Knife, with three blades and buck-horn handle. No. 57 is a still finer article, with four blades and buck-horn handle. No. 58 is an elegant Knife, with four blades and shell handle. No. 59 is a Ladies' Pocket Knife, a beautiful article, with four blades and shell handle.

Nos. 94 to 99.—Bound Volumes of the Agriculturist.—These are the same as Nos. 88 to 93 above, but are neatly *bound* in uniform style, and cost us more for binding and postage. Sent post-paid.

Nos. 100 to 111.—Good Libraries.—In these premiums, we offer a choice of **Books** for the **Farm, Garden,** and **Household.** The person entitled to any one of the premiums 100 to 111 may select any books desired from the list of our books published monthly, (see another page), to the amount of the premiums, and the books will be forwarded, Post or Express paid. $25 or $50 worth of books pertaining to the farm will give the boys new ideas, set them to thinking and observing, and thus enable them to *make their heads help their hands.* Any good book will, in the end, be of far more value to a youth than to have an extra acre of land on coming to manhood. The thinking, reasoning, observing man will certainly make more off from 49 acres than he would off from 50 acres without the mental ability which reading will give him. ☞ Let the Farmers of a neighborhood unite their efforts and get an agricultural Library for general use.

containing a great variety of Items, including many good Hints and Suggestions which we throw into smaller type and condensed form, for want of space elsewhere.

Postage 12 Cents a Year in Advance.—The postage on the *American Agriculturist* anywhere in the United States and Territories, *paid in advance*, is 3 cents a quarter, 12 cents a year. If not paid in advance, twice these rates may be charged.

How to Remit:—Checks on New York Banks or Bankers are best for large sums; made payable to the order of **Orange Judd & Co.**

Post-Office Money Orders may be obtained at nearly every county seat, in all the cities, and in many of the large towns. We consider them perfectly safe, and the best means of remitting fifty dollars or less, as thousands have been sent to us *without any loss.*

Registered Letters, under the new system, which went into effect Oct. 1, 1868, are a very safe means of sending small sums of money where P. O. Money Orders cannot be easily obtained. *Observe*, the *Registry fee*, as well as postage, *must be paid in stamps* at the office where the letter is mailed, or it will be liable to be sent to the Dead Letter Office. *Buy and affix the stamps both for postage and registry, put in the money, and seal the letter in the presence of the postmaster, and take his receipt for it.* Letters thus sent to us are at our risk.

Clubs can at any time be increased by remitting for each addition the price paid by the original members, if the subscriptions all date at the same starting point. The back numbers will, of course, be sent to added names.

Bound Copies of Volume XXVIII (1869) are now ready. Price, $2, at our office; or $2.50 each, if sent by mail. Any of the previous twelve volumes (16 to 28) will be forwarded at the same price. Sets of numbers sent to our office will be neatly bound in our regular style at 75 cents per vol., (50 cents extra, if returned by mail.) Missing numbers supplied at 12 cents each.

VALUABLE BOOK—FREE!—The Publishers of this Journal issue, every year, two Volumes, prepared with great labor and care, containing a large amount of valuable information, finely illustrated, in neat illuminated covers. These volumes should be in every household. They also contain very complete Almanacs, with calendar of work to be done each month, on the Farm, in the Garden, etc. One is the **"Agricultural Annual,"** and the other the **"Horticultural Annual,"**—entirely distinct in matter, illustrations, etc. Each volume contains **152** 12mo pages. They are of permanent value, and every one should have each year's issue. There are now Nos. **1, 2, 3,** and **4,** (for 1867, 1868, 1869, and 1870,) of each work.....To make these more widely known, and as a premium, also, the Publishers offer to send any one of these eight volumes, post-paid, to any person who, during the month of JUNE, forwards a subscriber for the current volume of the *American Agriculturist* (that is, for 1870), at the regular subscription price of $1.50. One copy of any volume of the Annuals desired, will be presented for *each* subscriber thus sent between June 1st and 30th. (Such names will not, of course, be counted in lists for the general premiums described, on page 165.)

HALF-A-YEAR Subscribers are now in order, to begin with July 1st, though it is always better for every one to get the back numbers and have the volume complete. Certain it is, that nowhere else, in no book, or elsewhere, can one get so many fine engravings, and so much varied information for the small sum of 75 cents as can be found in the first half of this volume of the *American Agriculturist.* Our pages are all electrotyped, and we can print off as many new copies of past numbers as are called for. ☞ *The next half of this volume shall in no wise be less valuable than the first half; but it will be just as much better as our very best efforts can possibly make it.*

Mr. Cameron's Horses.—There not being space enough on the first page to allow us to describe all the animals in the engraving, we give the remainder of the article here: *Glennevis*, the upper left-hand horse, was bred by Gen. Angestine in England in 1866, is of a rich, dark brown, with black points; over 15½ hands high, and growing rapidly; is perfectly sound, with excellent shoulders, great propelling powers, and very fine action. His pedigree is a very rich one. *Warminster*, at the lower right-hand side, was imported by Mr. C. in 1865. He is a dark bay on short legs; stands 15½ hands; long and level; powerful quarters, back and loins; his get are very promising—certainly the finest-looking of the season, and some of them out of trotting mares show wonderful action, and are highly valued. His pedigree is rich in the favored strains of Eclipse, Herod, and Matchem, of which he combines no less than 35 strains. He is at Clifton this season, and the price for his services is $100 for thorough-breds, and $50 for common mares. *Rebecca*, in the upper right-hand corner, is a chestnut, foaled in 1853. She was got by imported Glencoe out of a sister to big Aleck, by Medoc. The fine chestnut colt at her side is by Leamington, and she is now in foal to Warminster. —We have not space to write of these noble horses as they deserve.—Thorough-bred blood mingles with that of every other race, ennobling and strengthening it. It is a mistake to suppose that "blood" is of no advantage to trotting stock. The contrary is true emphatically. A letter is before us from a rather noted horseman in Connecticut, in which the following occurs: "Warminster's colts are, without exception, the largest and best I ever saw in this country. Prices have already been offered for yearlings of four times the amount that three-year-olds from the same mares can be bought for. Most of these about here, though from mares not speedy, show fine trotting action." As a rule it will pay better to send any really good mare, not of unusual size, and not very small, to a thorough-bred, rather than to a common stallion.

"The Patrons of Husbandry."—"J. C. M.," and others.—We know nothing of this organization beyond a report of an address made in its favor before the N. Y. Farmers' Club. If this address was correctly reported and the person fairly represented the organization, we see very objectionable features in the plan. There are, however, some excellent men concerned in the movement, and those who think they can do good by an organization of this kind.

Strawberry Exhibition.—Messrs. B. K. Bliss & Son propose to inaugurate their new store, Nos. 23 Park Place and 20 Murray Street, by an Exhibition of Strawberries. Very liberal premiums are offered, and Charles Downing and other well-known horticulturists have consented to act as judges. The precise day of the exhibition will be announced in the daily papers. Premium lists may be obtained upon application to Messrs. Bliss. We have no doubt that amateurs as well as market growers will generally avail themselves of this opportunity to exhibit their productions.

Peach Culture by J. Alexander Fulton, Esq., Dover, Delaware: Published by Orange Judd & Co. The Delaware Peninsula is now the great center of successful peach culture; and this work gives in minute detail the course pursued by the growers of that favored region in establishing the orchards from which the northern markets are mainly supplied with peaches. The work covers the whole ground, from planting the seed to marketing the crop. Besides a full account of orchard cultivation, there are special chapters upon training, and growing the peach under glass, and a full descriptive catalogue of varieties; Pp. 190. Price $1.50, by mail.

A Horticultural School.—Miss Emma Marwedel has opened a school at Brentwood Station, L. I., for the purpose of giving instruction in horticulture to the youth of both sexes. Miss M. has had experience in the industrial schools of Germany, and has the countenance and support of many of our best citizens in her present undertaking. We are glad to learn that she has received an encouraging number of applications for admission. Our fashionable ladies' boarding-schools have been mainly devoted to teaching the arts of *husband-ry.* Horticulture is now to have a chance.

Advice about Investments.—It is impossible for us to advise one to make this or that purchase, to mortgage his farm for a certain purpose, or to give counsel in other matters, where a knowledge of the individual as well as his surroundings is necessary to the forming of a correct judgment. Many letters asking such advice must remain unanswered.

Let Poisons Alone.—The N. Y. Evening Mail has the following: "A few drops of cologne, belladonna, or aconite, taken on a lump of sugar two or three times a day, will, it is said, give exceeding brilliancy to the eyes. A word to the wise, etc."—The Mail is such a well-conducted paper that we are surprised that it should give publication to such dangerous stuff as the above. A physician would not give belladonna or aconite two or three times a day without closely watching it.

"Eating a Mandarin."—An Eastern correspondent of one of the papers wrote home of "eating a Mandarin" under the shade of palms. Like a lively chicken the Tribune pecked at, and like a solemn goose the Evening Post gabbled at, the poor correspondent. It never occurred to either of these papers who are constantly pluming themselves on their agriculture and horticulture, that there is a well-known variety of orange called the Mandarin; and it is just as common for people in an orange country to speak of eating a Mandarin, as it is for us to mention eating a Baldwin.

Typographical.—Our types behave themselves very well as a general thing, but they did make us talk nonsense last month, on page 178, in an article on Seeds. It reads, "Air, without the pressure of which germination cannot take place." Of course, it should have been *presence*, instead of pressure.

Harris on the Pig.—This work is having a rapid sale, and meets with favorable notices from the Agricultural press. The Country Gentleman, whose good judgment in such matters is conceded, has given it two notices of commendation. It is a work written by a farmer, for the use of farmers; and though devoted to the Pig, its teachings apply equally well to all kinds of improved live-stock. Sent by mail for $1.50.

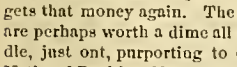
Horticultural Exhibition in Suffolk Co., N. Y.—The ladies of Suffolk Co., and the County Agricultural Society will hold a fair at Riverhead (L. I.) on the 22d and 23d inst. Premiums are offered for Fruits, Vegetables and Flowers, and a festival will be held on the evening of the 22d.

The Strawberry and its Culture; with a descriptive catalogue of all known varieties, by J. M. Merrick, Jr. Boston: Tilton & Co. One who writes upon strawberry culture at the present day will find but little to say that has not been said before. Mr. Merrick gives his account in a clear and pleasant style, and makes, as might be expected, a neat and useful handbook. The catalogue of varieties, which occupies 70 of the 128 pages of the work, shows a great amount of painstaking, and is more complete than any other.

Sundry Humbugs.—We have a *large* parcel of letters and circulars sent out by the "*fac simile*" money swindlers, which have already been shown up sufficiently. There must be a multitude of poor dupes in the country or these chaps would not continue the business so largely. One of the heaviest operators in this line calls himself "Dailey & Co., 73 Nassau St.," with several *aliases.* He prints his lithographic letters "April 14th, 26th," etc. He pretends to send to only one "keen, sagacious person" in each State. We have a large lot just alike, addressed to many persons in each of several States. He "positively refuses to receive letters by mail," (he can't get them from the P. O.) and will take nothing less than $25 for $500, as a first payment—for his worthless photographs. Among other new (spurious) names in this line, are Wm. A. Douglass, 718 Broadway; C. C. Alvord, 734 or 784 Broadway; Wm. Hammond & Co., 52 John St., and A. J. Hitchcock & Co., 148 Fulton St. (both precisely the same circulars as Dailey & Co., except the signature); James Arnold, Jr., St. Charles Hotel; A. H. Morrow, 730 Broadway, etc. In answer to the question asked in scores of letters, viz.: "Can't something be done to stop these swindlers?" we reply, 1st, that they do not have, or deal in, counterfeit money, or really offer it, though their dupes think they do; and 2d, while they do swindle multitudes out of money for naught, yet no one who has been wicked enough to *try* to buy counterfeit money and been cheated at it, is going to own up his own base efforts, and publish himself a counterfeiter by appearing as a complainant or witness against these rascals.....Here are more "Receivers" for Riverside enterprise, and a lot of fellows very anxious to sell watches for one-fifteenth part of their value—all of them humbugs; but green people keep sending on $5 to $15 each, expecting to get $100 to $200 watches. When people get anything, it is an apology for a watch, the more of which a man has the worse he is off; as they are neither good for use nor for sale, except as a swindle.....J. M. Blake, 694 Broadway, sends out red, blue, and gilt *pretended* certificates of prizes 46, 49, 77, in a "Spanish Lottery," saying that for $10 (5 per cent) he will forward a $200 watch; and A. L. Webb & Co., 296 Broadway, pretend to be acting for Blake—the whole thing is, of course, a down-right swindle. Wiggins, Bradford & Co., and Jas. Carter & Co., are nearly the same thing as Blake and Webb..... The so-called "Metropolitan Jewelers' Association," is a humbug. They (or he) don't send good American watches on $2 tickets, nor do any such thing. ....We know of several $5 Sewing Machines, so-called: but we have not seen one worth taking as a gift, much less one worth paying $5 for, or $15 for five of them..... R. S. Elerton, Fourth St., Williamsburg, though he pretends to, *don't* do any such thing as send, for $2.65, Gold chains worth $50, sets of ladies' jewelry worth $25, Patent

Gold Double-cased American Time-pieces, marked $50, and such like things. He offers lots of other "*things*." Better keep your $2.65, if you have any good use for it. ....To C. J. We answer no anonymous letters—though "Yes," will do in this case....."Oroide Watches" again—this time from "little Rhody." Let these alone unless you have money to throw away..... A man in Rensselaer Co., N. Y., offers a "Silver-plating recipe" for $10. We will give as good a one for $0. Dissolve Nitrate of silver with Cyanide of Potassium, and then study the art of using it well with a galvanic battery; and if you can then compete with those who make a regular business of silver plating with the requisite apparatus and machinery, you *may* make a little money.....Beware of *all* manufactured oils or illuminating fluids; buy *no* "rights" to make them. If you reject this advice, and choose to take the high-fallutin statements sent in circulars by various parties, go ahead and lose your money—but get your buildings fully insured against *all* risk before you touch these materials....Cancer Doctors! Don't read one of their circulars or letters, nor look at their pictures, nor let one come in speaking distance of you, or ten to one he will find a cancer, and half scare your life out of you, and all your money, especially the latter. There is not one of them we would give a moment's heed to, and we have given some attention to this class of advertising "doctors." Every sore, wen, or slight defect in the appearance of the skin even, is, with them, a "malignant cancer." One of these swindlers, a man of great reputation who had by his *own* account wrought wonderful cures by the hundred (he *was* over 70 years old) followed the writer for weeks, begging him to let him save his life—which he would do cheap (*only* $150.00) "considering his position," by cutting, burning, or plastering a little red spot on the side (not the *end!*) of the nasal organ. "It would surely soon eat into the face and get beyond remedy." We kicked the swindler away, and the red spot imperceptibly went away of itself. No "cancer doctor" ever cured a *real* cancer, which is a very rare disease; they do remove some troubles which would have gone away themselves, or have been better and far more safely removed by a regular surgeon or physician. Of course, in all cases a great cure of a great cancer is claimed by the swindler. "A Philadelphia chap is hunting up agents to send him patients, offering them '10 per cent'" of his fees. It is worth 10 per cent to even look at his awful, scaring pictures....."$800 a year"—"$900 a year"—"$1,000 a year"—"$1,500"—"salary guaranteed"—"all expenses paid"—a "commission extra"—etc., etc., etc. Such advertisements are continually appearing. They are usually swindles. One man advertises for agents to sell teas, etc., by sample, and makes very plausible statements by circulars and letters. His great "coffee and spice mills" consist of a little room just big enough to send out circulars and "take in" the money he requires *in advance* for the samples! Of course the sender never gets that money again. The samples, *when* any *are* sent, are perhaps worth a dime all told!....P. S.—A new swindle, just out, purporting to come from the "Broadway National Banking *House*," offers two or three millions dollars of bills of "Our Bank" at half price. This is a sheer humbug, an attempt to steal people's money by appropriating the name of the old well-known and substantial Broadway National Bank.

Tobacco Smoke for killing Sheep Ticks.—Mr. Z. S. James of Burlington, N. J., writes, describing a simpler apparatus for *smoking ticks* than Mr. Gladden's, figured in the May number. He says: "Some twenty years ago, after examining the cumbrous and expensive apparatus for fumigating plants, sold by the florists, I took a round tin box,



had a cone inserted in the cover end, and the same reversed on the other—put the tobacco in the box, dropped in a live coal, put on the cover, slipped one end on the nozzle of a common bellows, and it worked perfectly. This is much simpler than Mr. Gladden's plan, can be used much easier, and applied to any part of the animal without trouble."

Chinese Primrose.—Some of the newer seedlings, both double and single, are very fine. Henry Foddy, Gardener to Thos. Prosser, Brooklyn, brought us one of great merit.

Pronunciation.—"J. F. S.," Weigela, (not *ia*) is pronounced *Wy-gee'-lah*, Deutzia, *Doot'-zee-ah*, Coccinia, means scarlet, and is pronounced *cock-sin'-e-ah*.

Rose Oil.—James F. We do not know this oil, and have no desire to. If a gas or vapor that will take fire arises from it at ordinary temperatures, let it alone severely.

Herbaceous Pæonies.—"J. F. S.," Ellwanger & Barry, Rochester, enumerate about one hundred kinds in their Catalogue.—We cannot comply with your request to describe them.

Seeds Do not Come Up.—"A. A. V. B." Your seeds of Magnolia, Grape, and Rose, are slow of germination, if not sown as soon as ripe, or kept in sand until ready to sow. Magnolia seed is especially liable to spoil if not thus kept. All you can do now is to wait and give them a chance to grow if they will.

"Canaille."—A lady in Kansas wishes some of our readers to tell her how to prepare Canaille, or wheat shorts, as food.

Grubs in Lawn.—Several ask what they shall do for the White Grub in lawns. The European White Grub, much like ours in habits, is a matter of much discussion among the agriculturists and horticulturists abroad, and we have read much upon the subject in hope of finding something that would be of use in contending against our grub. In cultivated lands they employ children to follow the plow and pick up the grubs.—We know of no treatment likely to succeed against those below the turf on the lawns. If any one has found a remedy we shall be glad to make it known. Destroying the parent, the May-bug, or May-beetle, will be a preventive.

Cider for Vinegar.—"B. H. S." asks the best place to keep a barrel of cider intended for vinegar. The warmest place that can be found, and allow the air free access to the liquid.

Cut Feed.—"J. J. P." asks: "Is cut feed, so called, better than dry hay uncut, and dry meal, separately for milch cows? Yes, and if cooked better yet.

Gum for Postage Stamps.—"J. K. F.," New Lisbon, O. Postage stamps are coated with a solution of *dextrine*, which is starch prepared by heat or acids, and is soluble in cold water. It is usually kept by druggists and dealers in photographic materials.

Bedding for Cattle.—"Subscriber."—Which is better for bedding for cattle, with reference to manure, sand, sawdust, or peat and dried earth? Dry peat or dried earth.

Cucumbers.—Fred. K., Brunswick, Mo., wishes to know a better way to preserve cucumbers than salting them, and then being at the trouble of soaking out the salt. We saw, a few years ago, at the Ohio State Fair, some cucumbers preserved in water containing a slight amount of *sulphurous* acid. It was claimed to be a success, and was patented. People having such things should advertise.

Bugs on Vines.—Mr. Zimmerman writes that a tomato plant set in the center of a hill of cucumbers, melons, etc., will effectually keep off striped bugs and other insects. The tomato is cut away as soon as the vines begin to blossom.

Insects on Cabbage Plants.—Mrs. N. W., Chehanse, Ill. We suppose you to refer to the black flea or fly, as it is called. Freely sprinkling with wood-ashes and air-slaked lime, is the best remedy we have tried. It is stated that if the seed be sown in boxes, elevated several feet above the surface of the ground, the insect cannot reach them.

Plant Named.—J. W. Prince, Franklin Co., Mass. *Nierembergia filicaulis*, a pretty green-house or bedding plant for which there is no common name.

Bark-louse.—The specimens sent by H. C. Steadman, Mifflinsburgh, Pa., is Harris' Bark-louse. That from J. L. Redmond, Carroll Co., Ohio, is the Oyster-shell Bark-louse. We have already published such remedies as have been suggested. The eggs which are under the scales, hatch this month; the young insects travel to the young growth of the tree and there fix themselves, and finally reach the condition of those in the specimens sent....C. Jewett, Niles, Mich., says that wet, unleached ashes applied to the limbs of a tree, he considers to be better than ley, as when wetted by the rains it makes fresh ley until washed off. He says "The remedy is a sure thing."

A Botanical Microscope.—Several have asked where they could procure a small microscope for examining flowers and insects. Many suppose that a very high power is needed for the purpose. It is only in a certain class of examinations that a strong magnifier is required. All that the student needs is a glass of moderate power so arranged that he is not obliged to hold it, but has both hands at liberty with which he can pick to pieces a small flower placed under the glass. These conditions have been met in a little instrument furnished by Ivison, Blakeman, Taylor & Co., New York, called the "Gray's Microscope," because it was made for the use of Dr. Gray's classes. A pocket magnifier is fixed upon a stand and is supplied with a stage to hold the object. The stand is ingeniously contrived to answer as a box to contain the parts. Price $2.

Vermin on Cows.—"E. M. M.," Mich. Your cow has lice, probably. One of our correspondents recommends Indian meal as a sure cure for them. It is not a cure, but it gives vigor to resist their influence. Feed better yet, use the card, and wash with carbolic soap. The feed will tell in the milk and butter, and you will more than get your money back in these products.

Apples for Northern Iowa.—D. W. Adams gives the following as his selection of varieties for Northern Iowa: "*Summer*—Red Astrachan, Sops of Wine, Duchess of Oldenburg....*Autumn*—Saxton, or Fall Stripe, St. Lawrence, Fameuse.....*Winter*—Plumb's Cider, Perry Russett, Blue Pearmain, Ben Davis, Rawle's Janet, Talman's Sweet."

"The Southern Agriculturist."—Agricultural papers multiply with great rapidity in the Southern States. The latest is the "Southern Agriculturist," a neat monthly of 32 pages, published by Thomas J. Key, at Louisville, Ky., at $2 per annum.

Paradise Apple Seed.—F. W. Watson, Tobique, New Brunswick. We do not find the seed in the catalogues. The nurserymen raise their stocks from stool layers, the same as they do the quince. We doubt if the use of the Paradise stock will make your trees any more hardy. For your climate we should try some of the improved Crab-Apples noticed last month, as well as the Russian varieties.

Pruning a Young Orchard.—"Subscriber," Rockville, Md., "fears to apply the knife" lest he should not observe the maxim "let well enough alone." If he has not a definite idea of what he wishes to prune for, we advise him to defer pruning, until after the severity of next winter has passed. In the mean time if young shoots are pushing, where branches are not wanted, remove them.

Fruit Preserving Powder.—Several have inquired concerning this preparation. It has been used by several of our associates with satisfactory results. The proprietor does not claim that this method is preferable to the best air-tight process; but he does claim that its cheapness and the ease with which it can be done commend it to those who wish to preserve fruits in any considerable quantities. The preparation we believe to be quite harmless, and that it will preserve the fruit we know from experience.

Currant Caterpillars.—Fred. Goldberg, Dakotah Co., Minn. Procure powdered white hellebore and dust it over the leaves of your currant and gooseberry bushes. A few applications will rid them of caterpillars.

Black Ants.—"Inquirer," Salem, N. J., wishes to know how to exterminate the large, black ant. He has "tried many things, but as yet, all have been ineffectual."—We once devoted a good share of our time to two ant-hills, using every remedy we could hear of. Somebody gave it up, and it was n't the ants. Mr. Rivers, of England, uses 4 oz. of quassia, and 1 gallon of water; boil for 10 minutes, and add 4 oz. soft soap. We have not tried it, but it comes from excellent authority.

Red Spider on Fuchsias.—"G. W. H.," Philadelphia, says: "Fill a barrel nearly full of water and slack in it about a quarter of a peck of lime and let it stand until perfectly clear. Hold the plants affected in the water (bottom up) for about five or ten minutes, then wash them with pure water."

Minnesota State Horticultural Society.—The following were elected officers at the meeting at St. Paul in Feb. last: J. S. Harris, President, La Crescent; C. P. Cook, Vice President, Garden City; H. Louweter, Recording Secretary, Red Wing; J. W. Harkness, Corresponding Secretary, Faribault; Wyman Elliot, Treasurer, Minneapolis. A correspondent who was at the meeting writes: "All were strong in the faith that fruit raising in Minnesota would be a success. Each year develops new seedlings of rare promise worthy of trial. It was stated that not less than 15,000 bushels of apples (Pyrus Malus) had been grown the past season in the State. Many new facts were brought out in the discussion with regard to the raising of the apple in Minnesota. Adjourned to meet at Minneapolis, July 4th next."

Hints on House-keeping Conveniences.

Saving labor, or what is equivalent, saving "steps," is an important point to be always kept in mind, in all plans for the arrangement of rooms, pantries, etc. A house-keeper writes us, that, from the suggestions thrown out in our articles on dwellings, she has been led to re-arrange the position of the sink, pump, table and pantries, in her kitchen and dining-room; and that by a simple arithmetical calculation she finds that during the last 12 years she has traveled 2,190 miles more than she will have to, during the next dozen years, with the new arrangements. It cost her about $50 to put things just where they ought to have been placed at first without any extra cost.

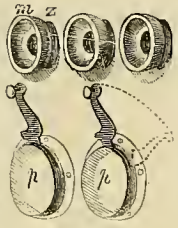


Fig. 1.

Bells.—These are very simple contrivances, easily provided at trifling cost, and they not only save steps but promote quietude. Very good bells are now sold at 20 to 25 cents each; a wire "carriage" and check spring cost 10 to 15 cents; a few cents' worth of No. 18 tinned wire, two or three triangles for changing the direction, costing 6 to 10 cents each, and a bell-pull costing anywhere from 25 cents for a slide, to a dollar or so for a japanned, bronzed, or plated crank with porcelain cap (*p*, **Fig. 1,**) are the requisites. Any mechanic, with common ingenuity, can hang one, though in a large house it is cheaper to employ a professional bell-hanger. The wires may run along the corners of a room, or behind the casing, or back of the lathing; but is far better when building a new house to use the zinc tubing prepared specially for the purpose, and costing only about 1½ cents per foot. This is fastened outside the lathing and covered over with the plaster, with the end bent outward where the bell is to be hung. Bell boxes (**Fig. 2,**) are attached to the end where the pull is to be placed, and this is covered with the mortar, except at the opening for the pull. In this tubing the wire runs smoothly and with little wear, and is easily put through after a house is completed, if mortar has been kept out by the insertion of a wooden plug in the open ends. The bell boxes are kept by hardware dealers and sold for 6 to 8 cents each.


Fig. 2.

Speaking-Tubes.—Two persons standing at each end of a simple tin pipe, one inch in diameter, 50 to 100 feet or more long, with several elbows in it, and carried through half a dozen rooms, can still converse quite readily in a low voice. Such tubes may be carried between any two rooms in a house, however distant, and save a world of steps, and calling through the halls. (See pages 88 in our March number, and 129 in April number). A mouth-piece for inserting in each end, is shown in fig. 1. This may be of common tin plate, like the mouth-piece of a tin horn, but with the opening the same size as the tubing, or more elaborate. The three shown in fig. 1, have a porcelain rim, *m*, and a zinc shoulder, *z*. These retail at 30 to 40 cents each. Ready-made tin speaking-tube in 5 feet lengths, is retailed in the hardware stores for 4 cents a foot, and the elbows at 3 to 4 cents each. Fifty feet of tubing with two mouth-pieces, and staple hooks for putting up the tubing, will cost only $2½ to $3, and it can be put up by any expert carpenter. It is usually fastened firmly along the studding before lathing. It can be carried through any timbers in an auger-hole. An invalid unable to move upon a bed may have a flexible rubber tube extend from the tin pipe in the wall to the bed, with the mouth-piece in this, and thus be able to communicate with persons working in a distant room. Were we constructing a new house for ourselves, we should be tempted to run a speaking-tube from each to every other room. As they never wear out or need repairs, the annual interest on the cost of a tube 50 feet long would scarcely exceed 25 cents.

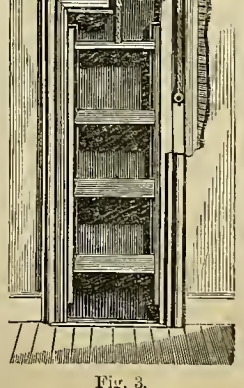


Fig. 3.

A Dumb-Waiter, is a great labor-saver, especially where the kitchen and dining-room are not on the same floor. It is simply a cupboard, or shelves, suspended on a cord passing over a pulley with a weight attached.


Fig. 4.

Fig. 3 shows a good form. Here the slide is suspended in the middle over a large wooden pully. It runs much better than the old-fashioned one with weights upon two sides. The weight is a piece of broad, flat cast-iron, running down upon one side. As the waiter does not need to rise more than 5 feet above the floor, there is room over it for the large pulley, or wooden wheel. A dumb-waiter may rise through the floor, its top being carpeted and forming part of the floor. In this case, two weights to slide down on two sides, are required, with the cords over small pulleys in the casing, and attached to the slide near the bottom.


Fig. 5.

Ventilators should be provided in every room of every house. We usually put in two, one (**Fig. 5,**) just over the baseboard; and another, (**Fig. 4,**) near the ceiling. The lower one is opened and closed by turning the ratchet-wheel, and the upper one by means of cords hanging from the two opposite sides. Where a cold room is being heated the upper ventilator is closed; the warm air rises to the ceiling and forces the cold air out through the lower ventilator. When the air becomes rarefied and impure, the upper ventilator will carry off that portion nearest the ceiling. Round, 5-inch ventilators, black or porcelain enameled, cost about $1.10 each, and the rectangular ones, 4×6 inches, cost about $1.60 each. An opening should of course be carried up through the wall from each ventilator or pair of them in one room, to the attic or to some point giving free exit to the air. Where a beam is in the way, it can be pierced with several small auger-holes, in sufficient number to allow free passage of the air. This can be done so as not to weaken the beam.

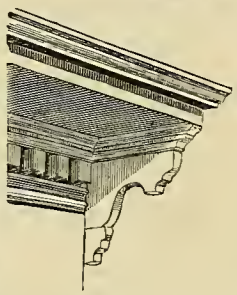


Fig. 6.

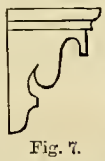


Fig. 7.

Cornice Brackets.—Three pieces are shown, copied from the houses described in March and April, which will serve as patterns. **Fig 6** is a portion of the

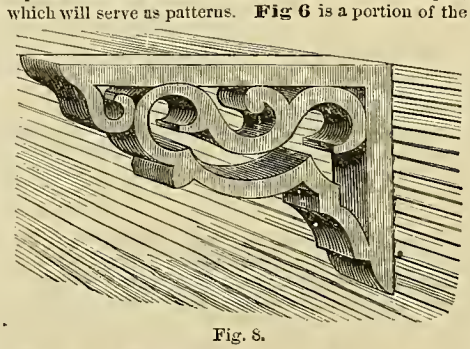


Fig. 8.

cornice, and dentils under the eaves. **Fig. 7** is a neat form of a bracket for the head of a bay-window, or a small portico. **Fig. 8** is a tasteful pattern for brackets to be placed under and supporting a bay-window.

Bee Notes.—*By M. Quinby.*

The Apiary in June.—Put boxes on early in this month, there will be no harm if they are on a few days before they are really needed. They should have small pieces of comb stuck in the top. The whiter and cleaner the comb for this purpose, the better. As fast as boxes are filled, replace them with empty ones. They must always be shaded. Progressive bee-keepers should be so advanced as not to wish or allow their bees to swarm at all in the usual way; but to such as still remain where they were ten years ago, I say now is the time to look for swarms. Small apiaries swarm more than large ones in proportion to their numbers. Putting on boxes will not often interfere with it, and if in any case it should, the box honey might compensate for the delay of the swarm. You cannot get many swarms and much box honey from the same hive. Weak hives should be examined. If queenless, supply a laying queen; if diseased, drive out the bees so that they may begin again; or put them in a hive with combs kept over from last year and frozen during the winter. In thus transferring bees from a diseased hive, keep them 48 hours in an empty box, to dispose of the honey they may take with them, supposing they are filled, before putting them in clean, pure combs. Bees should never be driven out in less than 10 days after the first swarm issues, or before the young queen hatches. Twenty days would be better still. When after-swarms issue nearly at the same time, two together will make a good swarm. Such are not always quiet. When several hives containing after-swarms made up in this way, are standing in a yard, they will frequently begin to unite in a way which a careless bee-keeper would not be likely to notice. Ten or a dozen bees at a time will leave some one hive for another, and this process repeated, sometimes produces surprising changes; and where you thought you had half a dozen good swarms you suddenly find you have two or three monsters, and the rest of the hives are empty. Where bees are entering a hive in this way, a few at a time, they will generally stop a short time around the entrance and set up a buzzing by which the careful observer may detect them. If this is discovered while the hive from which the bees are coming still contains enough for a fair colony, stop the entrance with wire-cloth, and the bottom with wire-cloth or something that will admit the air; for bees are very easily smothered this warm weather; turn it on its side and put in a cool cellar for twenty-four hours. This will generally quiet them. If they continue uneasy after they are set out, it may be taken as an indication that they have no queen, and one should be given them. Such swarms are liable to lose their queens when they go to work. If the first combs they build are for drones, it proves that the queen is lost. Under such circumstances they will accept a queen at once. Those who wish to control swarming are referred to the *American Agriculturist* for June, 1869.

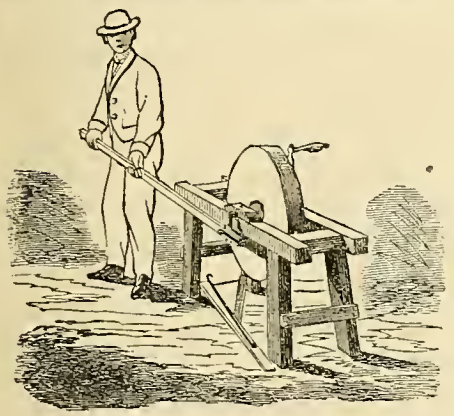
The Best Beehive.—Several letters have recently been received inquiring for some non-patented movable comb-hive suited to the needs of progressive bee-keepers. Although I shall not give a detailed description, measurement, etc., I will endeavor to present a general idea of the hive I have recently adopted, and am now using. I invented it to meet my own necessities, and as I did not expect to make anything by its sale or general introduction, I have not taken any special pains to make its merits known. However, I am willing to give all a chance to become acquainted with it. I consider it free from any patent or claims of infringement. The prevailing idea of the hive, as I use it, is to make it a non-swarmer, and secure the largest amount of surplus honey in the best shape for market. The first of these considerations has long occupied my attention; for until swarming is fully controlled, results must be more or less uncertain. This point has been attained by the use of a device, called a queen-yard, made as follows: Nail together strips of boards to make a box 18 or 20 inches square, by 3 or 4 inches deep, with a floor of thin boards, except a strip 4 inches wide, which should be of wire-cloth, for sifting out dirt, and for ventilation. Fasten strips of tin 2 inches wide, around the inside at the top, parallel to the floor; and make an opening in the side next to the wire-cloth, in the floor, corresponding to the entrance of the hive. Paint the upper side of the tin some light color. In swarming-time place this yard in front of the hive. Previously examine the hive, and clip the wing of the queen. When a swarm is disposed to issue, all the bees are obliged to pass through this yard, and the queen, being unable to fly, or crawl over the projecting tins, will return to the hive where the bees will soon follow her. To prevent their raising a young queen which can fly, the hive must be opened, and all queen cells cut out once a week, unless it is desirable to supersede the old queen, in which case *one* cell may be left; and after she has hatched and commenced laying, which will be in about ten days, find her and clip her wing as above directed. The old queen should be removed just before the young one hatches. The inside of the hive is simple, consisting of eight movable frames, supported by a device which clears them from any patent. The frames are 11×18 inches, inside measurement, and are held in place by a piece of hoop-iron fastened on the outside of one of the end pieces, near the bottom, and bent at a right angle to project under the end of the frame about ¼ inch, to form a sort of hook. There should be space enough between the hook and end of frame, to allow it to slip over a piece of hoop-iron, fastened across the bottom board of the hive, which has a slight channel cut under it to give requisite room. One end of each frame being thus secured, they remain perpendicular, and are kept at the right distance from each other—¼ inch—by nails partially driven in the sides of the frames. There are various other items in the construction, such as ventilators, etc., which I cannot take room to describe. At the sides and top of these frames, there is space enough to place surplus boxes of over 100 lbs. capacity, holding from 2½ to 4 lbs. each. Top boxes are placed directly on the frames; side boxes with the partially open ends, against the main combs. If the honey is designed for home consumption, extra frames may be used

instead of boxes. A large box, which is joined at the corners with hooks, encloses the whole, and can be readily opened at any time. The space devoted to boxes in summer can be filled with dry hay or straw, and the hives remain safely on the summer stand during winter. Those who prefer to increase their colonies by natural or artificial swarming, to securing large amounts of surplus honey, can use these frames to advantage by omitting the extra space designed for boxes, and enclosing with a box just large enough to accommodate the frames, leaving sufficient room to prevent the bees from waxing the outside combs fast to the hive.

Bees and Fruit.—J. M. Brooks, Columbus, Ind., asks "If bees can be kept on a fruit farm profitably, or will they sting and injure the grapes?"—I have raised more or less fruit, and especially grapes, during all my years of bee-keeping, and do not find the two incompatible. On the contrary, I have always maintained that they could be very advantageously combined, for several reasons, which I have not space to enumerate at present. I have never found bees destructive to grapes, although they are sometimes found upon them, particularly in such seasons as the last, when honey was not to be found, and the bees were actually starving.

Grape Queries.—J. C. Bayler, Ky. We cannot say what buds you should rub off from your vine without knowing in what manner you wish to train it. Recollect that each bud will produce a shoot which in autumn will ripen into a cane, and rub out accordingly ....The Eumelan and Hartford Prolific are among the earliest sorts.....The vine which blossoms but does not bear, is probably a seedling with undeveloped pistils. Such often occur, especially among wild grapes. The best thing to do with it is to graft it over.

Grinding Scythes, etc.—We are approaching the time when the grindstone will be in pretty constant use. A good grindstone should have both a crank and a treadle. If the stone be well hung and oiled, light work can all be done by one man; but for heavier work like scythe and ax grinding, the holder needs some one to turn. We have often experienced the difficulty which has annoyed our correspondent, Geo. Kuntz, of Peoria Co., Ill.; namely, of the person turning, being in



the way of the scythe or set of mowing machine knives. Mr. Kuntz has the stone turned by a boy moving a rod attached by a slot and pin to the treadle-crank. Putting the suggestion to a practical test, the writer was much pleased with the convenience and ease with which the stone was turned, and we illustrate it in the accompanying engraving. The hand crank should be taken off and the stone run at a higher speed than usual. A medium sized stone is best, and our correspondent says that he finds very small stones run in this way, serviceable. At any rate, with this appliance there is no raising up and down of the whole body, but the work is done at the best advantage by the arms;—besides there is no danger of cutting the hands or head as in turning by the crank.

Cooking Fodder.—"L. F.," Ogle Co., Ill., asks: 1. How much more fuel does it take to cook fodder for cattle with steam than the common way of cooking? 2. What machinery is needed to do it carefully? 3. Wont it do as well to shell the corn before cooking as to cook it in the ear?....(1.) Practically not much. Theoretically the amount of water in the boiler has to be heated to the boiling point, and this much heat is wasted. But this is a small affair when compared with the extra labor required in boiling fodder. The great advantage of steam is, that it is so perfectly manageable....(2.) A cutting machine for hay, etc., a trough in which to wet the hay and mix it with bran or meal, a box or chamber in which to confine it while being steamed, and some sort of a steam-boiler which shall be safe to generate steam in.... (3.) The labor of shelling would be lost, and probably a longer time would be required before complete cooking would be effected. The best way is to put ears of corn into a barrel, put in water enough to cover them, and then introduce the steam through a pipe reaching to the bottom of the barrel, and fire up until the water boils. Then withdraw the pipe, cover the barrel, and leave it from 6 to 12 hours before using.

Steaming Corn for Pigs.—George A. True, of Ill., fed new corn from Sept. 26th to Dec. 1st. He fed 70 bushels per week, which made an average of 724 lbs. per week. He asks what he can gain by steaming. We know of no experiments among our own acquaintance that furnish a definite answer to this question. In fact so much would depend upon the condition of the corn that no single experiment would have much value. The softer the corn, the less the relative benefit from cooking. We have seen reliable statements in agricultural papers to the effect that twice as much pork was made by a bushel of corn when ground and cooked, as when fed whole. This would probably be too much benefit to hope for, under any ordinary circumstances. We have practised cooking for hogs during the past winter, and are satisfied that it is profitable; but have made no accurate weighings to determine the exact result.

Butter Packing — Correction.—On page 219, in the paragraph on Packing and Marketing, after "Firkin, Tub, or Pail, as the case may be"—read (which should have been previously soaked in brine.)

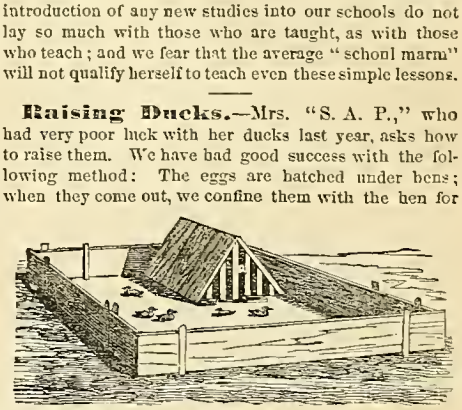
How Many Beans to Sow to the Acre.—There are four kinds of field beans; viz., The Pea bean, of which 4,400 are contained in a quart; the Blue-pod bean, of which 2,700 are in a quart; the White Marrow, of which 1,300 make a quart, and the White Kidney, 1,200 of which make a quart. If the hills are 2 feet apart each way and 6 to 8 beans are put in a hill, it will require 18 quarts of the Pea beans; 1 bushel of Blue-pods; 7 pecks of the White Marrows, and 2 bushels of White Kidneys.

The Grain Crop.—The Report of the Department of Agriculture for May, gives very full reports of the condition of winter grain. The results are summed up as follows: "They picture a small and slow growth, thinned in places by winter-killing, weak and nothrifty in spots from loss of vitality by long exposure under ice or to freezing winds; but, with these exceptions, vigorous, of good color, and ready to start, under the influence of a genial spring, into luxuriant and healthful growth. These blemishes are neither general nor very marked in localities where they appear, with occasional exceptions of severe freezing. While the appearance of wheat is by no means as promising as it was last year, the difference is due, more to the backwardness of growth, caused by late planting followed by an early winter, which allowed of little more than germination before cold weather set in, than to injuries from freezing. The mild weather and light snows of the winter-wheat region were accompanied with few sudden changes in the earlier winter months; while the colder and rougher weather of later winter was attended with heavier snows, which furnished valuable protection at a critical season. The regular returns were prepared about the first of April. The tenor of later information gives assurance of a general and rapid amelioration, which may yet result, the season favoring, in a fine crop of winter wheat."

Maple Sugar.—The articles in February and March have called out several valuable suggestions, for which we thank the writers. They came too late to be of use this season, but like other good things, they will keep. In April, Mr. Chamberlain, the author of the articles referred to, convinces us that he practises what he teaches, by sending specimens of his sugar and syrup—the last remarkably fine.

The First Book of Botany, designed to cultivate the Observing Power of Children, by Eliza A. Youmans. New York: D. Appleton & Co. Miss Youmans has evidently given much thought to mental growth in children. Convinced that there was nothing in the ordinary circle of school studies that cultivated the powers of observation, she, in seeking for some study that should teach a child to use its eyes and record its observations, fixed upon botany as best suited to her purpose. In the present work she takes the different parts of a plant, and teaches the child their names and the different shapes the parts assume. It only claims to present the merest rudiments—to show the difference between leaf, stem, etc., and to teach the child to state what a part is, and to describe its shape. We must confess to a hearty sympathy with the objects of this work. How far it will accomplish the author's aims, can only be told by actual trial. The subject as presented by Miss Youmans is worthy the consideration of teachers and all who have the education of young children. The obstacles to the introduction of any new studies into our schools do not lay so much with those who are taught, as with those who teach; and we fear that the average "school marm" will not qualify herself to teach even these simple lessons.

Raising Ducks.—Mrs. "S. A. P.," who had very poor luck with her ducks last year, asks how to raise them. We have had good success with the following method: The eggs are hatched under hens; when they come out, we confine them with the hen for



several days by placing boards to make a little yard around the hen-coop, as in the engraving. The coop is set on a board so that the hen cannot scratch, and water and food are placed where she can reach them. The ducks must always be called when fed; and at first allowed to get a little hungry before feeding, food should not be left before them. They will soon learn the call of the hen. When they do so and run quickly to her, and when they run to the coop for safety and when hungry, the boards are pulled up and the ducks let run. They have to be watched at first and driven back, when they wander far. Soon they may be trusted anywhere but in a brook or pond. If they get wet while in the down, and before two or three weeks old, they are in danger of being chilled. A heavy thunder shower often proves fatal from this cause, if they are caught by it far from home. After they are several weeks old they are in danger of being washed away and lost by the sudden rising of a brook or stream in which they may be allowed to forage. They need water only to drink, and to wash in, and a shallow trough or tub will hold enough. If rapid growth and large size are desired, ducks must be fed very frequently—as often as they will come and call for feed, is our rule—say once in three hours, and must have a range.

Rock-Work.—"S.," Holly, N. J. Rock-work is best made of large stones laid up so as to represent a natural out-cropping of the rock. In arranging the stones, irregular spaces or "pockets" must be left to hold earth. Another way is to build up a structure of medium sized, irregular stones, using cement (water lime mortar) to hold them together; and afterwards paint the whole over with a wash of water lime to give it a uniform color.

Who Buys an American Watch?—Half a million watches have been made by the American Watch Co., at Waltham—No. 500,000 was finished a few weeks since.

Cranberry Culture.—A work upon the culture of the Cranberry, which should give the present approved methods of culture in a practical manner, has for a long time been needed. The publishers of the *American Agriculturist* are glad to announce a work of this kind, which is now in press and will shortly be ready. The author is J. J. White, Juliustown, N. J., a successful grower of cranberries on a large scale. There have been so many loose statements with regard to cranberry growing, and so much rash speculation in the business, that a well considered work like this will be timely.

The American Entomologist has changed its title to that of "Entomologist and Botanist." The botanical editor is Dr. George Vasey of Illinois, long known as one of the leading botanists of the West. Mr. Riley will continue to look after the "bugs." A popular botanical journal has long been wanted, and we shall be glad if the present one fill the gap. R. P. Shedley & Co., St. Louis Mo., Publishers, $2 per annum.

Salt and Lime Mixture.—Thos. Ford, Miss. Experiments indicate that there is a gain in mixing these substances, that is, in slaking quicklime with brine. The chemical reaction which takes place is not so definite as might be supposed. Lime is oxygen and calcium; salt is chlorine and sodium; an interchange of bases would convert lime and salt into chloride of calcium and soda. This action probably takes place, but to a very limited extent, depending upon the heat of the mass. The value of the article is probably chiefly due to the intimate mixture effected.

Chocolate Corn.—"J. A. S."—this is a variety of *Sorghum vulgare*, and is also called Durra corn and Indian Millet. We do not find it in the catalogues.

Farm Windmills.—C. M. Colby, of Minnesota, asks concerning windmills, whether there is a patent "on a wind-power, consisting of a vertical *flutter* wheel enclosed in movable blinds, which are adjusted by a governor, to run even." He also asks the expense of a windmill for watering stock from a well ten feet deep.—We know of two instances in which the *flutter* wheel described is used, but without a governor for regulating the blinds. These are moved by hand. They require a good deal of attention, and have not impressed us favorably. The application of a governor to these blinds seems impracticable. A windmill of much better construction, perfectly self-regulating, and with power enough for a ten ft. well, could be erected for about $100 including the cost of pump.

Spring Water for Trout Ponds.—P. R. Wagenseller, of Pa., has a spring so low that he can get no fall for a hydraulic ram. He wishes to convey its water to a trout pond about 30 rods distant and 12 feet above it. He asks: "Is there any contrivance other than a hydraulic ram, (which I cannot use for want of a sufficient fall), or the windmill (which might fail in calm weather) by which I could secure the use of my spring water to my trout pond? Is there any way by which the spring can be raised above its natural level so as to get fall for a ram?"—Water cannot be raised without power. Without a fall the ram is of course out of the question; and it is seldom possible to raise a spring above its natural level. As soon as it accumulates a little head, it will force an outlet at some fresh point, often beyond the reach of masonry. Under the circumstances described, there seems to be nothing so promising as a good windmill. By giving a little extra size so that the pump may be worked during light winds, there will hardly ever be 24 hours together when the pump will not work.

Horse Papers for Farmers.—No. 5.

Lest it be thought that I attach too much consequence to purity of blood in horse breeding, I desire to give the reason for my belief that it is not the only good thing, but much the best thing to be sought after.

What we know is that the blood-horse is a descendant, with perhaps a slight admixture from other sources, of the Oriental horse, whether Syrian, Barb, Turk or Arab. It is claimed that the blood-horse, otherwise called the "thoroughbred" horse, is even better than his Oriental ancestor, and in point of speed he undoubtedly is so. He is also of better size and better adapted to our uses. In gaining these advantages, however, he has lost much of the beauty and some of the wonderful endurance of the Eastern horse.

General Daumas, in his report of the horses of the Sahara, which was published with the approval of the French Minister of War, gives the result of long and careful investigations, carried on in Algeria under the most favorable circumstances. His account of the feats of endurance of the Arab horse would be incredible, were they not proven by most reliable evidence. He says that it is not rare, in time of war, for horses, under the saddle, to make from 150 to 180 miles in twenty-four hours. A tribe, learning that its enemies meditate a raid upon it, sends out scouts, mounted on the best mares, carrying but one ration of barley for the evening feed. They sometimes extend the scout from 75 to 90 miles away. If their observations lead them to fear an immediate attack, they return as rapidly as possible, but if there seems to be no danger, they return more slowly but still arrive at their tents before the evening prayer, after having made sometimes from 150 to 180 miles in 24 hours, (50 to 60 leagues). If there is a battle the next day, these same horses are able to take part in it. He cites an instance in which the favorite mare of an Arab, which had been selected by the tribe to which he belonged to be given to the Sultan as the price of peace, being ridden by the Arab's son 80 leagues (240 miles) within 24 hours, during which time it drank but once and ate nothing but the leaves of a date palm. General Daumas says that this young man swore to him "by the head of the Prophet" that he could have slept the next night at Gardaya, 45 leagues (135 miles) further on, if his life had been in peril.

These are but two of many instances within Gen. Daumas' own knowledge, of wonderful feats of speed and endurance. The Arabs of the Sahara thus sum up the perfections of a horse; "He ought to carry a full grown man, his arms and change of clothing, food for both, a blanket for bad weather, carry a corpse in case of need, and run the whole day without thinking of water or food." Of course we shall never see and we shall never have occasion for such feats of endurance as are here indicated; but all that is most valuable in our own horses, is inherited from the race to which such feats are possible, and in proportion as we are able to infuse this blood into our own stock, shall we add to the worth of our horses.

For the drawing of heavy loads and for farm work, we need more weight of body than the Arab or the average thorough-bred possesses; but the extent to which size may be sacrificed for the sake of blood is greater than would be at first supposed, for blood brings not only intelligence, energy and endurance, but actual physical strength. The bones of a blood-horse are much stronger and more compact than are those of a cold-blooded cart-horse. The one is comparatively like chalk, the other like ivory; and the fibre of the muscles as well as the strength of the tendons, shows an equal superiority in the case of the blood-horse. When, therefore, we combine the vigor and *vim* of the high-bred horse with his greater rapidity of motion, even in walking, we shall see that a moderate sized horse, requiring much less food for his support, will actually accomplish more work in a day than the heavier but more sluggish cart-horse.

As Herbert has expressed it in his Hints to Horse-keepers,—"Now as to what constitutes value or excellence in all horses.—It is indisputably, quickness of working, power to move or carry weight, and ability to endure for a length of time; to travel for a distance with the least decrease of pace; to come again to work day after day, week after week, and year after year, with undiminished vigor.

"The horse which can plow an acre while another is plowing half an acre, or that which can carry a load of passengers ten miles while another is going five, independent of all considerations of amusement, taste, or what is generally called fancy, is absolutely worth twice as much as the other. It is not only not true, that speed alone is the only good thing desirable from blood, but something very nearly the reverse is true. It is very nearly the *least* good thing. That which the blood-horse does possess, is a degree of strength in his bones, sinews, and frame at large, utterly out of proportion to the size or apparent strength of that frame. The texture, the form and the symmetry of the bones, —all, in the same bulk and volume, possess double or nearer fourfold the elements of resistance and endurance in the blood-horse that they do in the cold-blooded cart-horse. The difference in the form and texture of the sinews, of the muscles, and in the inferior tendency to form flabby, useless flesh, is still more in favor of the blood-horse. Beyond this, the internal anatomical construction of his respiratory organs, of his arterial and venous system, of his nervous system, in a word, of his constitution generally,—is calculated to give him what he possesses, greater vital power, greater recuperatory power, greater physical power, in proportion to his bulk and weight, than any other known animal, —added to greater quickness of movement and to greater courage, greater endurance of labor, hardship, suffering,—in a word, greater (what is called vulgarly) game, or pluck, than will be found in any other of the horse family."

As I write this, I call to mind a horse that I owned during the war. He was very nearly if not quite, thorough-bred. He was raised in Tennessee and had been used as a race-horse. I rode him almost constantly through a severe cavalry campaign that lasted for more than a year; and during the whole time, he never flinched from any duty, never faltered under the influence of bad weather and scanty forage, and was always a cheerful and willing friend and servant. One Monday morning I mounted him at half-past four, and set out on the march. At half-past eight we struck the pickets of Forrest's cavalry and spent the next two hours in beating the bush and skirmishing. From half-past ten until half-past twelve, we were engaged in a sharp fight that required me to keep in active motion over the field. From this time until half-past four, being nearly out of ammunition, we were kept in scouting duty on the flanks. At this time, our army being defeated and in retreat, we had to hold the rear until nearly dusk and then go to the front to open a way for the infantry. The retreat was rapid and unintermitted until six o'clock on Tuesday morning when we had passed a dangerous fork of the road. Here we halted for half an hour, during which time my horse was unsaddled and allowed to browse among the weeds of a barren stubble field. After this short rest, we mounted again and re-commenced the retreat, which was continued during the day without other intermission than was afforded by some active skirmishing in our rear. During the day I hardly dismounted for five minutes at a time until night-fall, when we halted for less than half an hour for consultation. Mounting again, we rode the whole night through, and until half-past ten on Wednesday morning, when we reached the lines of our main army. My horse had been on duty fifty-four hours, carrying a weight, (including saddle and arms), of not less than 200 lbs. During the whole time he was not more than thrice watered and was almost absolutely without food. Yet he came whinnying into camp, not as fresh as when he started, but by no means in an exhausted condition. In a case of life and death, I believe he could have gone another day. I had in my command over two thousand horses fit for duty. Of these hardly another one stood the work as well as mine did, and I attribute his superior condition solely to the fact that he was much the best bred horse of the brigade.

Let not this narration be considered out of place here; for while no farmer is called upon to ride two days and a quarter without intermission, there is not one who would not appreciate the advantage of having a horse that *would* thus carry him if necessary. If it had been a case of plowing instead of fighting, or of hauling manure away from town instead of carrying a whipped cavalry man away from the enemy, I am confident that my Tennessee horse would have shown the same superiority over the low-bred animals of the country, that he did under the circumstances described; and I leave his example to reinforce all that I have said in favor of breeding to thorough-bred sires. My future papers will be devoted to other branches of the subject; but I trust that my readers will continue to realize, that the very keystone of all

good horse breeding lies in the resort to the highest bred sire whose services can be obtained.

Ogden Farm Papers—No. 6.

The season for soiling has now arrived. Those who have intended to make it a sole reliance for their summer feeding, have prepared for it before this; but there is still time to put in sowed corn to help out the pastures during the drier weather of August and September. No time, however, must be lost. By the middle of this month, at the latest, the seed should be in the ground. It seems to me that it is impossible to manage an American stock farm advantageously without adopting some such expedient.

From the middle of May until the middle of July, our good pastures are luxuriant, and are capable of supporting a much larger stock than they can carry through the July and August drought. As a consequence, we are unable to consume all the provender that is available in June, because this would require us to keep more animals than could be fed in August. Or, if we do stock our pastures to the utmost of their June capacity, our animals will be half starved during the drought.

Much the simplest way to regulate the question of supply and demand, is to depend entirely on soiling. In this case, we are sure that we shall always have enough, and the surplus,—that which the cattle do not consume,—instead of being scattered in irregular patches over the pasture, much of it overgrown, and mixed with weeds, is in a condition to be easily mowed, cured, and stored for winter use. It is not to be supposed, however, that in a country like this, any very considerable proportion of its farmers will be able to command sufficient labor for a complete system of soiling; and as we have to take the world as we find it, the most valuable advice that can be given to average American farmers, would be to lay down the paper at once, and set immediately to work to prepare, for sowed corn, enough land to allow a quarter of an acre for each head of full grown stock on the farm.

By and by, when the hill-sides become browned with the scorching summer sun, and the withered grass fails to furnish the necessary food, then the corn, three or four feet high and covering the ground with a succulent mass of vegetation, will give the animals such a bountiful supply every morning and evening, as will carry them back to the condition of early June. If the pastures are suffering more than usual, such an amount of fodder as this, would enable us to keep the stock entirely off until the early fall rains bring them to a better condition.

I am perhaps not quite right in saying that this is the best advice to be given. It is more properly the advice which it will be the easiest to get followed. What really ought to be done in the case of most farms, is to sell off or to turn out to woodland the poorer half of the farm, concentrating the whole amount of labor, capital, and manure on the smaller area. There is hardly a large town in the country near which some thrifty gardener is not bringing up a family and growing rich from the proceeds of a small garden. Any ten acres of good land may, without much straining, be made to produce the summer and winter food of fifteen cows. What we want is a more resolute concentration of our efforts on smaller areas. I have in my mind a farm of 200 acres on which 30 head of stock are kept, and from which 50 tons of hay are annually sold. From what I know of the land, I feel confident that, if 150 acres were sold, outright, and the money thus obtained all expended in the improvement of the remaining 50, it could be made, within five years, to carry 50 head of stock and to sell an equal value of roots or grain. What we want is *High Farming;* not $20,000 barns, fancy cattle, and fancy management, but rich food and plenty of it; copious manure heaps protected from the weather; frequent and thorough cultivation; and the crowding of each crop to the highest point that it is capable of. When I see a man trying to make five loads of manure cover an acre of land, I always wish that I could make him, just once, concentrate it upon an eighth of an acre. Up to a certain point (and it is a point that we very seldom attain), it is the manure that makes the crop. On ordinary land, a ton of manure will produce as good a result on four rods, as it would on half an acre. To get this result we, in one case, plow, sow, cultivate, and harvest, twenty times as much land as in the other, and it costs twenty times as much to do it. The more we can concentrate our production within small areas, that is, the less we spread ourselves out thin over big farms, the more *profit* we shall get for our own work, our supervision, and our capital.

Very often visitors to Ogden Farm, when they see its narrow boundaries, point to the uncultivated land adjoining it and say: "It is a pity you can't buy 100 or 200 acres of that land and bring your farm up to a good size." I usually tell them that that is precisely what I wish to avoid. Before I get through, I hope to treble the quantity of the land; but I hope to do it by fishing out the next two farms that lie immediately under this one. If I can make the soil three times as deep or three times as rich or by any means three times as productive as it now is, I shall have virtually added 120 acres to the farm; and I shall have the further advantage that the new land will be no farther from the barn, than what I now cultivate, and that one plowing will answer for all three tracts.

The great agent in this improvement will be the soiling system, which I have now tried sufficiently long to prove its efficiency. It is a system on which I have no patent, which was invented long before the improvement of Ogden Farm was thought of, and which is equally open to every farmer who chooses to "haul in his horns" and raise his present crops from one-quarter his present area. The objection that a large amount of labor is required, has, of course, a good deal of weight, but not so much as is supposed. Any man who will keep watch for a week, even in summer time, over the blacksmith's shop, the grocery store, and the village, will see enough time idled away by the farmers themselves, to suffice for the soiling of all the live-stock in the township. And this is another point involved in the question of High Farming; what this requires is no more a larger number of men than the full industrial employment of every man's time. Gossipping, pottering, and sheer idleness occupy, on an average, at least a whole month out of each year of every farmer's life. And a month's time, well put in, from sun to sun, will accomplish an amount of work that would surprise even the most industrious. Many a man dawdles away, on an average, two or three hours a day, poking along over the road at a jog trot to town to sell an amount of produce that is actually not worth the time of himself and his horse. Another requirement of High Farming and especially of soiling, is *system.* Plans must be made beforehand; tools must be repaired in bad weather; and every moment of good working time must be made to tell to the utmost. It would be enough to make any ordinary farmer rich, if he would employ, in profitable and well planned work, the time that he now spends in hunting for mislaid tools; getting hay rakes repaired during the haying season; loafing along the road and spoiling two or three half-days every week in going to town on trifling errands.

I am aware that this is not exactly the sort of compliment that American farmers are in the habit of receiving from Agricultural writers, but I happen to be a farmer myself; and I live in a community of farmers. I preach better than I practice, and I am not innocent of the faults that I have portrayed; but I have the grace to be ashamed of myself, and find ample justification in my own habits and in those of most of my neighbors for the foregoing remarks. Most of us fool away time enough to make us much better farmers than we are.

I confess that I am somewhat perplexed on the subject of plowing for corn. I have always been an advocate for deep plowing under all circumstances, that is, as deep as the character of the soil will allow; but I am satisfied that deep plowing was one of the causes of the failure of my corn crop last year. This spring, I have laid out for an experiment in the other direction. I shall plow my corn-land, as nearly as possible, four inches deep, only following in the furrow with a subsoil-plow so as to get the advantage of deep rooting, without removing the richer soil and the manure too far from the surface. I propose to plow with Collins' cast-steel plows; one followed by the ordinary subsoil-plow, and the other having a subsoil attachment made with it. It is claimed that three horses draw this combined implement, when four would be required for two implements doing the same work. Even if four horses are required for it also, I shall at least save the labor of one man; and as any other field plow has the Volkman guide, little Hinderek can manage that team, and the plow, which has no handles, will take care of itself.

I had made up my mind, in consequence of the great amount of hand labor required in weeding, to abandon the system of drill planting, and to plant in hills so as to be able to cultivate both ways. Having purchased Thomas's smoothing harrow, I have changed my mind, and shall plant in drills again. It is claimed for this harrow, that it almost entirely does away with the necessity for hand-hoeing corn. It takes a breadth of 9 feet, and has 120 steel teeth which slope backward, so that it breaks and crumbles the soil without tearing out any well rooted plants. Friend Thomas assures me that it may be driven broadcast over a cornfield, after the corn has spread its leaf, without injuring a single plant, and that it will kill every weed less than an inch high. This looks like a large story; but my experiments with the harrow thus far indicate that it is true, and I shall not hesitate to adopt this system in cultivating my whole crop. If it will efficiently weed corn planted in drills, it is a great acquisition; for drill planting has some decided advantages. Not only is the yield of grain and fodder materially increased, but the corn can be put in without delay and have at least a fair start with the weeds. My course will be to plow a land on one side of the field, have the harrowing finished as soon as the plowing is, and follow immediately, on the same day, with marking off and planting.

In this way, I believe that, if I delay planting until the ground is well warmed, the corn will grow as early as any weeds. At the time when the leaf is well spread, there ought to be no weeds half an inch high; and the smoothing harrow would undoubtedly destroy them all at a single operation. This alone would give the corn such a start that its subsequent care would be a simple matter; but it is claimed that the harrow may be passed repeatedly over the field until the corn is a foot high, without bruising it to any noticeable extent. If this is true, as I believe, it will greatly simplify the raising of corn, and will relieve the farmer of an immense amount of labor that must otherwise be done at a time when hands are needed for other work.

We are now getting some tangible reward for the winter feeding and management of our stock. The manure cellar has been well filled with a solid mass containing very little straw, and with just enough clay-sand mixed through it, to make it handle easily. Precisely what the quantity is, we cannot tell until it is all out; but there will be not less than 400 two-horse loads, and I would not exchange it, load for load, for what would cost me $4 per load in stable cellars in town. A team and two men will haul out from the cellar and spread, from 12 to 15 loads per day. The most that I could do in hauling from town, would be to get 2 loads a day, during good wheeling, and it would be much harder on the team. I think that I am within the mark in estimating the value of the winter's manure, including that from the hogs and poultry, at $2,000. That which has been taken out during the winter and early spring and spread upon the land intended for corn, has started such a growth of grass, as has not been seen before on Ogden Farm.

The value of this manure makes a large deduction from the cost of feeding. In so far as it has been produced by the consumption of purchased food, it is as certain an addition to the intrinsic value of the farm, as though the manure itself had been bought and brought on to it. On looking carefully over the stock and the account of produce sold, I am satisfied that the increase has repaid all legitimate farming outlays, and that the manure on hand has cost nothing. I shall be able, this year, without purchasing to give a heavy dressing to the corn, corn-fodder and roots; and it is difficult to foresee now, anything that will prevent our getting profitable crops from the forty acres that will be cultivated this year. The remaining twenty acres have not yet been manured (except where sea-weed has been used), and I do not expect much from them. They were last year seeded down with clover, which looked well enough in the autumn; but the winter has been a very open one, and the present outlook is not brilliant. I cannot see that winter-killing has been materially lessened where the sea-weed was used. I think we made the mistake of feeding too closely in the fall. I shall try the experiment this year of not feeding the new meadows at all; and I have mixed red-top and timothy with the clover seed, hoping that the three will sufficiently cover the ground to protect the roots. As this year's seeding is on land that has been manured, it is reasonable to hope for better results. The present clover land will be re-sown with the mixed seeds, and brushed in with the smoothing harrow; the whole receiving a top-dressing of plaster at the rate of one bushel per acre. Whether this will do any good, remains to be seen. There is a popular idea that plaster has no effect near the sea-shore; its use is practically unknown here.

Sheep Dipping to Destroy Ticks and Scab.

All kinds of sheep are, at times, annoyed by parasites in their wool or skin, which can only be removed and destroyed by the application of substances which are poisonous to them. The most common of these parasites are the tick or louse, and the scab-mite. The sheep-tick, or properly perhaps, the sheep-louse, for such it is, is exceedingly annoying, occurring in the best kept flocks, and sometimes almost devouring the sheep alive. Figure 1 represents the tick magnified; an outline of one of the natural size is shown also, for comparison. The mode of propagation of the tick is peculiar; the egg is developed and the young animal passes into the pupa state in the body of the female, so that the little sacks attached to the wool, shown in figure 2, which are usually called eggs, are not eggs but pupæ. In this state, life is not so easily destroyed as in the perfect insect. From time immemorial, dips and washes of various kinds have been employed for the destruction of these little pests, and we might fill half the paper with recipes. The bases of most of these have been tobacco, hellebore, arsenic, or mercury, made use of singly or mixed, and mingled with tar, oils, and alkalies, in varying proportions. Now, however, the best results are obtained from the use of carbolic acid in some form, usually combined with soap, and applied in the form of strong suds. The skin, as is well known, secretes an oily soap, which, while it does not permit the wool to be easily wetted, is nevertheless itself soluble in water, especially in a soapy or alkaline water.

Fig. 1.

After shearing, the ticks to a great extent leave the ewes and are found upon the lambs. In small flocks the labor of dipping is not great, and a simple trough 5 feet long, 20 inches to 2 feet wide, and 3¼ to 4 feet deep, (see fig. 3), is all that is needed. It should be furnished with an inclined table covered with slat-work, and set so that after the dipping the sheep may be laid upon it to drip, while the solution is rubbed in to the skin and then squeezed out of the fleece. The trough is best made of pine plank, the ends being secured in "gains" in the sides. These are bolted together, and the bottom being nailed on, is made tight by triangular corner pieces well pitched. With this trough, three men are required to dip; and for each sheep there should be about two minutes allowed; the sheep being either in the bath, or under manipulation a full minute. The other minute will be required on an average to catch the sheep, and to renew the bath, when necessary. When a large flock is to be dipped, this requires altogether too much time, as only thirty sheep can be dipped in an hour. They have a very expeditious way of dipping in Scotland, in which, by means of three sets of dippers, and a man to bring up the sheep, 140 to 150 sheep can be dipped in an hour. We illustrate this in the accompanying engraving (figure 4). The trough is 12 feet long, 20 inches wide, and 3 feet 3 inches to 4 feet deep. The sheep are confined near by; and some twenty at a time are hurdled close to the trough, and passed up an inclined gangway one at a time, to the dippers. A little gate opens and the sheep is driven or drawn out upon an elevated platform at the hight of the tub, as shown. One man takes the animal by the ears, and the other two by the feet. It is soused into the trough, and every part except the face thoroughly wetted, care being taken that none is swallowed or spattered into the eyes. The sheep is moved along slowly to the other end of the trough, and then lifted out or shoved up upon a platform capable of holding twenty or more sheep. The drips of this platform flow back into the trough; and the sheep are left to drip until another set comes on.

Fig. 2.

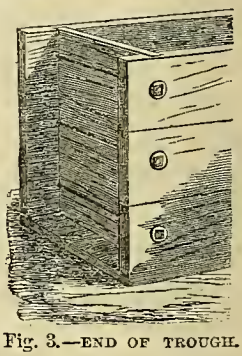


Fig. 3.—END OF TROUGH.

The employment of oils to soften the fleece is often recommended, and is probably good both for the health of the flock and for the wool. The best mode of applying oil with the dip is probably to pour about a pint of whale oil into the trough when each sheep is put in. The wool takes it up at once, and it does not interfere with the efficacy of the dip. In dipping a flock, both old sheep and lambs should be dipped, and in most cases the operations should be repeated at the end of a week to destroy any vermin that may have hatched in the mean time. A warm, calm day should be selected, and after dripping, the sheep should be stabled or folded, well fed, and thus kept warm until dry.

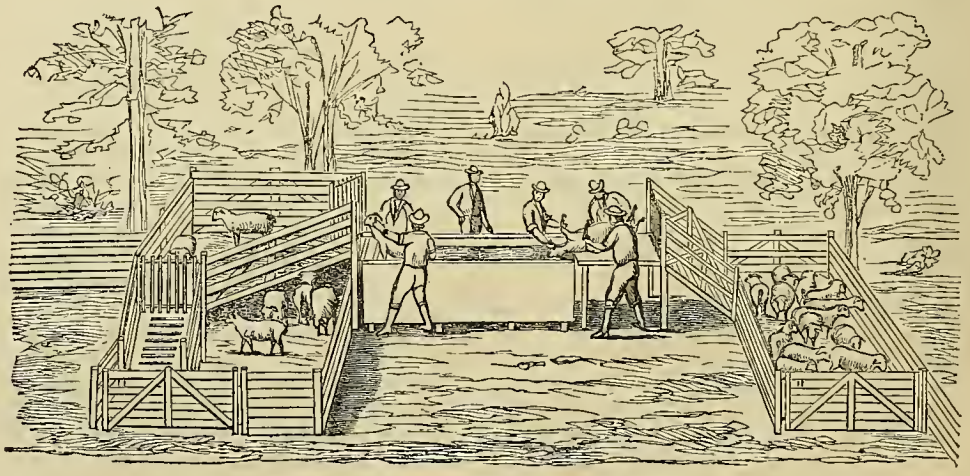


Fig. 4.—SCOTTISH SYSTEM OF DIPPING SHEEP.

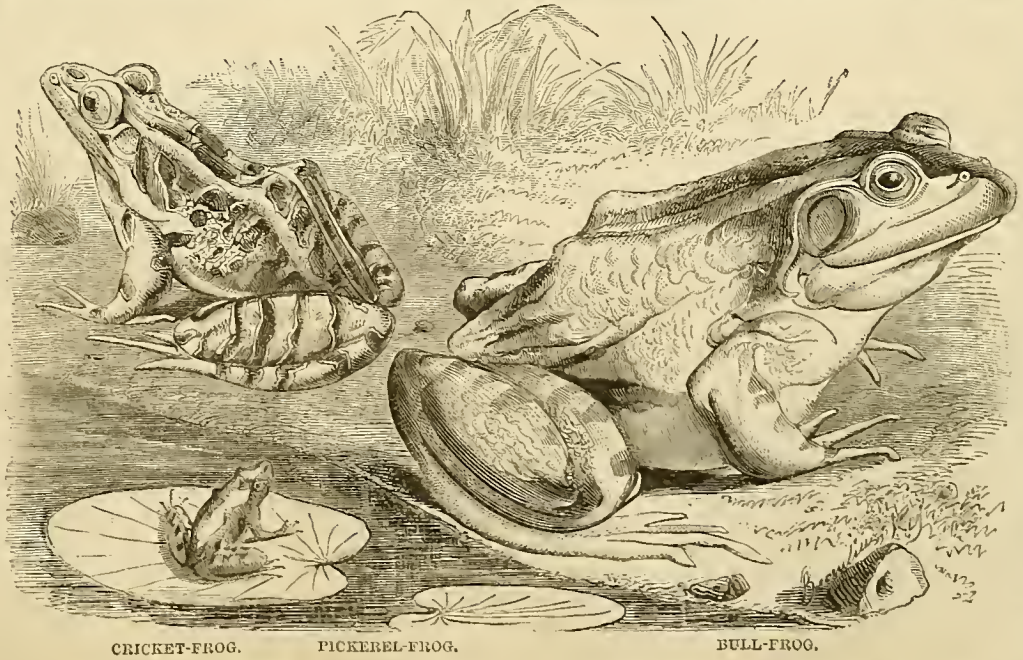
The "Prairie Apple"—(*Pomme Blanche.*)

The species of our native plants are very numerous, but among these there are but few which furnish articles of food. Berries and perishable fruits are more or less abundant in their season, but those native products which can be stored up are limited in number, and as articles of food are at best indifferent. Neither in the variety nor in the quality of his food does the savage equal the poorest among the civilized. Acorns and grass seeds are poor substitutes for corn and wheat; and among the several more or less edible roots used by the Indians there is none which approaches the potato in excellence and nutritious quality. A large share of the vegetable food of some of the Western tribes of Indians is the Prairie Apple, or Pomme Blanche, as it was named by the French *voyageurs*. It is the root of a Psoralea (*P. esculenta*), which is found from Wisconsin westward to the Rocky Mountains. The plant grows about a foot high, has leaves with five divisions, and its flowers are clustered in a dense head, much resembling a large clover; the flowers are purplish-blue. The root is turnip-shaped and somewhat farinaceous; and though it would be considered scarcely edible by us, is gathered in large quantities by the Indians and stored for the winter. Mr. Cary, who has given us many illustrations from the far West, has sketched a party of squaws—it being one of the Indian "women's rights"—engaged in collecting their supplies of this much valued Pomme Blanche.

SQUAWS COLLECTING THE PRAIRIE APPLE.

Our Native Frogs.

There is a strong resemblance between the Frogs proper, the Tree-toads, the Cricket-toads, and the true Toads. They are all remarkable in having their young strikingly unlike the adult animals. The young are hatched in a very incomplete state, and go through their developments in the water. At first they breathe by external gills, and have no organs of locomotion, except a tail. As the animal grows, limbs appear, the tail disappears, and the office at first performed by the gills is afterward assumed by the lungs. Some, such as the toad, when fully developed, leave the water, and only return to it at the breeding season; while the frogs are more or less aquatic. While in the young state these animals all feed upon vegetable food; but after they have reached their perfect development they are carnivorous. The frogs proper have a visible tympanum, or ear-drum; the upper jaw and palate are furnished with teeth, and in the male the throat has what are called "vocal vesicles," membranous appendages communicating internally with the mouth. These are capable of being enormously distended, and by the aid of them, the well-known piping and croaking are produced. The best known, as well as the largest of our species, is the Bull-frog, (*Rana Catesbiana.*) This sometimes reaches over 20 inches in length; and its deep bellowing may be heard for a long distance. The color of the upper portions varies from green to dirty olive, upon which are irregular black blotches; the body is yellowish-white below. The Bull-frog lives more generally in the water than our other species. It bites readily at a bait, if held near to its mouth, and even may be caught by a hook baited with a bit of cloth. This frog has the reputation of being destructive to young ducklings, seizing them from beneath the water. The hinder legs of the Bull-frog afford a highly esteemed article of food, occupying the place in the estimation of our gastronomers that the Edible-frog (*Rana esculenta*) does with those of Continental Europe. In the times when the English were strongly prejudiced against everything French, the French were looked upon as a nation of frog-eaters. The fact is that frogs are not, as is popularly supposed, a common article of food with the French, but are only used as a luxury. It may be that if the Edible-frog were found in England, the prejudice against frogs and those who ate them would not have been so strong. In this country much of this prejudice exists, and many who live where frogs are abundant deprive themselves of a most delicate article of food. A few years ago we met among the lakes of the New York wilderness, a person who annually caught barrels of frogs for the New York market, and who had never been induced to taste one. The hind-legs are the only portions used; these are skinned and fried in crumbs or made into a fricassee, in the same way as are spring chickens, which in delicacy and flavor they much resemble. The Green, or Bawling-frog, (*Rana clamitans*), is about $3\frac{1}{2}$ inches long; it is green above and yellowish below. The Leopard-frog, (*R. halecina*), in some localities called the Shad-frog, is bright green above, with spots of dark brown, margined with yellow, and a yellow line extending from the eyes along the sides of the body. It displays great activity in leaping. The Pickerel-frog, (*R. palustris*), so called because it is often used as a bait for pickerel, is $2\frac{3}{4}$ inches long. It is yellowish-white below, and above it is marked with two longitudinal rows of square spots, which are dark brown upon a ground of pale brown. This species is shown in the engraving. The Wood-frog, (*R. sylvatica*), only visits the water at breeding time. It is found in thick woods, and leaps with great activity when disturbed. It is about 2 inches long, pale reddish-brown above, yellowish-white beneath, with a dark brown stripe upon each side of the head. The smallest specimen shown in the engraving, though it usually passes for a frog, is properly a Cricket-frog, and belongs to the genus *Hylodes* (*H. Pickeringii.*) It is found in woods and upon plants near the water. Its shrill note is familiar to all who live in the country. A related species is called the Savannah Cricket, which is often tamed and sings in confinement. It is said to soon learn to know its owner, and to accept flies from his hand. The related Tree-frogs, or Tree-toads, belong to the genus *Hyla*.



CRICKET-FROG. PICKEREL-FROG. BULL-FROG.

Walks and Talks on the Farm—No. 78.

There seems to have been an unusual amount of fatality among pigs this spring, and I do not wonder at it. One of my neighbors says he had seventeen pigs from two sows. He was busy and did not pay much attention to them, and the first thing he knew the sows had eaten up every one of them. "Did you see her eat them?" I asked. "No," he replied, "they were under the barn and one day I thought I would go in and see how they were getting along, and they were all gone." The pigs probably died from neglect, and then the sow, having no other way to "bury her dead," ate them up to get them out of her sight. Another neighbor says his sow ate up a litter of a dozen. I have no doubt that sows sometimes eat their own live pigs, but where one pig is lost in this way a hundred die from neglect, or from disease inherited from parents that have been weakened by bad treatment. The latter cause is often overlooked. A farmer in Ohio writes to the *American Agriculturist* that he "Had a nice litter of fourteen pigs this spring; the sow in good condition and well kept. When a week old the pigs were taken sick and eleven of them died. The pigs all over the neighborhood are dying in the same way. They drop down, lie still, breathe very hard, become cold, and in an hour or two, or at longest one day from the time they were attacked, die without a struggle." It is probable that this is some hereditary disease derived directly or remotely from a defective male animal kept in the neighborhood. For my part I am not sorry that "Hog Cholera" and other fatal diseases are on the increase. They are necessary to convince us that dirty water, decaying food, filthy pens, and general neglect in breeding and management are not conducive to the health of pigs. I verily believe that there are people who think that bad treatment is good for a breeding sow—that it makes her hardier and healthier!

Feed liberally, work steadily, and clean thoroughly, is my motto in the management of horses. My great trouble is to get the horses rubbed dry and clean before leaving them for the night. Where horses are worked six days in the week, thorough grooming is absolutely essential to their health. The more highly they are fed the more important it is to clean them. Most men use the curry-comb too much, and the whisk and the brush too little. I do not myself insist upon it, but I believe it would pay always to take the whole harness from the horses when put in the stables at noon, and rub them dry, washing the shoulders with cold water and afterwards thoroughly drying them with a cloth. Every man and team on the farm costs me at least $750 a year; and I question if one farmer in a hundred duly appreciates how much he loses from having poor horses, and in not keeping them in vigorous health, and in condition to do a maximum day's work. Do not many of us from having inefficient horses, poor plows, dull harrows, rusty cultivators, shaky wagons, and other imperfect implements and machines, lose from one-third to one-half the whole cost of man and team? And besides this, do we estimate how much we lose by getting behind with our work from these and similar causes? I had an old mowing machine that I got with the farm that "for the sake of saving it" I used for two years. Directly and indirectly I have no doubt that machine cost me $1,000! It cut just as well as a Wood's or a Buckeye, but it was a one-wheel machine with a wooden cutter-bar. We split the bar and had to repair it; then we broke the knife and had to take it to the blacksmith shop to have it welded. He "burnt" it and it broke again. Then I sent to New York for a new knife. This cut off the finger of the only man who knew how to operate the machine and laid him up for several days. The consequence was, we did not get through haying until after wheat harvest. And you can imagine what kind of hay I had to feed out the next winter. Now I have two new mowers that a man cannot break if he tries; and in looking back I can hardly believe that I was ever so foolish as to waste time in tinkering an old worthless machine.

Where one has smooth land that can be mown with a machine, it is a great mistake to turn working horses out to pasture in summer. There can be no question that land will produce more food when the grass or clover is allowed to grow until it is in flower, than if constantly cropped down as it grows. With a good mower, tedder, rake, and unloading fork, the expense of getting the hay into the barn, if it is a good crop, need not exceed two dollars a ton. In the summer let the hay be cut into chaff and soaked in water for twelve or twenty-four hours, and the horses will eat it almost as readily as they will fresh grass. With the proper boxes for soaking it the labor is very slight. I used to chaff my hay with a horse-machine, cutting up enough at a time to last for several weeks; but I question if it is not better, after all, to cut it every day by hand as it is wanted. One of Gale's Copper-strip machines will cut in two or three minutes all the hay a team will eat at a meal; and if the knives are sharp, it is mere child's play to turn it. The object of soaking the hay chaff instead of merely moistening it in the ordinary way, is to soften it and allow it to absorb water—just as we soak dried apples before cooking them. Of course, we must not use more water than the hay will absorb, as in such a case it would wash out the sugar and other soluble nutritive matter from the hay. It is true that if the water is used for soaking the next feed of hay, the sugar would not be lost, provided it does not ferment. A little experience will enable any one to regulate the matter. Horses so fed, with a little grain, will fill their stomachs sooner and have more time to rest, and will be able to do more work than if turned out into a pasture—and in the morning you know where to find them and can eat your breakfast with dry feet. But the horses must be well groomed, especially at night, and the stables properly ventilated and kept clean and sweet. No food should be left in the manger. If it is not eaten up clean it should be removed before the horses are taken from the stable. I would give them what hay they would eat in the rack, but none to waste. I have a span of horses that will pull out from the rack, and waste, more hay than they eat, if allowed an unlimited supply. They should have a little hay in the rack to eat when they first come in from work, and after the harness is removed and they are rubbed down a little and are cooled off, give each horse a peck or so of cut feed. When he has eaten this let him be watered, and then give more cut feed. The practice of watering the horses at the pump or pond, as they are brought from the field, is not to be commended. A careful farmer may do it with impunity, because he would not allow them to drink too much when they are hot or tired, but many a good horse has died from careless watering.

If horses are worked steadily from 7 A. M. until 11.30, and then from 1.30 to 6 P. M.—say 9 hours, they will accomplish more than if they were kept longer in the field and rested every few bouts. When I hear the horn blow about 5 o'clock in the afternoon and see great, stout young fellows leisurely walking to the house to eat their cookies, leaving their teams tied to the fence, or with their heads hanging down in the furrow, I think this may be a good country for men but a hard one for horses. Because a horse cannot grumble and a man can, is no reason why the horse that does the hard work should not eat as often as the man who drives. By keeping on until 7 o'clock instead of 6 o'clock, and spending half an hour at lunch, the horses are kept out an hour longer in order to do half an hour's work. Would it not be better to keep right along until 6 o'clock, and thus let the horses have an hour's more time in the stable to eat before lying down to rest for the night? There would then be plenty of time to clean the horses, and attend to many little things that are now neglected. And, from the horses being in better condition, more work would be accomplished. In haying and harvesting, of course, we must often work as long as we can see, and the men, and horses too, should have lunch. But in plowing, harrowing, cultivating, and other ordinary farm work, there is no advantage in keeping the horses out so late, except occasionally in getting in the seed, etc., and when such is the case the horses need lunch just as much as the man who drives them.

Let the boys, when at work in the field, have lunch, morning and afternoon. *They* need it. When I was a boy, I went to plow at 6 o'clock, which was my father's rule, and I can recollect how terribly hungry I got by 9 o'clock, and how good a little bread and cheese and beer tasted about half-past nine or ten.

All young, growing animals, other things being equal, need more food and at shorter intervals than animals that have attained their growth. And the great secret of success, in raising improved breeds of stock, is to furnish the young animals all the food they can digest and assimilate. As long as they are growing rapidly there is little danger of their getting too fat. The popular notion that we cannot keep Cotswold, Leicester, or Southdown sheep in large flocks arises from the fact that when so kept the young sheep and lambs do not get the extra food and attention that they require. I have a flock of over ninety thorough-bred Cotswolds and about two hundred and fifty Merinos. And I am satisfied that with the Cotswolds a *given weight of mutton* can be kept in a smaller space than with the Merinos. A neighbor said of the Cotswolds: "You cannot keep so many. You ought not to have more than a dozen or so. These sheep are not like Merinos. You cannot keep them in large flocks. So and so tried it and the sheep pined away." Now all this is sheer and unadulterated nonsense. I happened to know the history of the flock he alluded to. Many of them were imported sheep brought over at different times by an English farmer who gave them good care and plenty of food, and they did remarkably well, although they had no "roots"—only good pasture in summer and plenty of good clover hay in winter. But by and by the farm and the stock passed into the hands of some young men who did not work the land as well, nor give the sheep the requisite attention, and both farm and flock run down rapidly. My father used to keep a large flock of Southdown and Leicester sheep,

and I spent two years on the farm where one thousand splendid Hampshire Down sheep were kept; I never heard the first intimation that there was any objection to having large flocks provided they had plenty of food and the requisite care and attention.

A wealthy New England gentleman writes: "Can you help me? I have an Elephant on my hands and do not know how to treat him. I have bought a run-down farm in Virginia of eleven hundred acres. It is a heavy clay loam, and was once considered one of the finest plantations in the country; but the 'skinning process' has done for it—wheat and corn all sold off the place and nothing brought on. The fields are now covered with a growth of young pines and its meadows with briars. There is neither muck nor peat in the vicinity. Does it need underdraining? How about turning under green crops, or using lime, phosphates, etc.?"

If I had this gentleman's purse I should have no fears of being able to make the farm as productive as it ever was, and a good deal more so. And it would pay, too. It probably needs draining. This can easily be ascertained by digging holes three or four feet deep, and if water flows in and remains there, it needs underdraining. Then after shearing, I would buy sheep by the hundred, and bran by the car-load. I presume bran can be bought for $20 per ton, and the manure from it is worth at least $14—in fact, it is better worth $20 than almost any artificial manure we can purchase. Give each sheep a pound of bran a day and half a pound of oil-cake. Keep enough of them, and they will gnaw down every green thing they can reach. If you get overstocked at any time feed more bran. The sheep will get very fat and can be sold to advantage. The manure will pay from half to two-thirds of the cost of the food. Success will depend very much on feeding liberally. In the meantime, put in the plows, with strong teams of oxen or horses. It will be rough work; but no matter. Keep the plow in where you can, and where you cannot, draw it through the briars on the surface, striking it in occasionally. Do not stop to back up. Set fire to anything that will burn. If grass grows as freely there as it does here, it will spring up on this partially plowed land and the sheep will eat it with avidity. Keep on plowing. Give up all idea of sowing any grain crop; but sow grass seed in the fall. By stocking heavily with sheep, and fallowing at the same time, the land, in two or three years will be subdued and will yield an abundance of rich grass. Then you can do anything you like with it. The summer-fallowing and the manure from the bran and oil-cake will make it very rich.

C. F. S. of Bucks Co., Penn., writes me that he "has been nearly all his life in a factory, but has always loved farming and wished to train up his children to it. So three years ago he bought a farm. He found it much poorer than it was represented, and also that money went a deal faster than he was led to expect." I can well believe the latter. But he says he "has faith in farming," and if so, he will come out all right. He asks me a half-dozen questions in regard to the application of manure, rotation of crops, etc., which I cannot answer. I should adopt the rotation *most convenient;* having reference to cleaning the land, time of sowing, harvesting, etc. The aim should be to distribute labor throughout the year; not to have too much to do one month and nothing the next. When much land is devoted to corn and potatoes, we have generally more work to do in the autumn than we can accomplish—with comparatively little to do in the spring. With me the most leisure seasons of the year are from the 1st of March until the 1st of May; and from the middle of August until the 1st of October.

From the 1st of October until winter sets in, we have a great deal to do. Men are scarce, wages high, and days short. Our object should be to increase our early spring work, and ease off on the late fall work. Sod land can be plowed earlier in the spring than corn stubble; and oats and peas do well on sod, and can be sown as fast as the sod is turned over. Barley seldom does well on sod land, unless plowed early the previous fall. We should sow this crop on the corn-stubble. Potatoes do well on clover sod, and can be planted before or after the corn crop, as we have time. After the corn and potatoes are planted, we have still time to plant beans.

"But you won't catch me planting any more beans," says one of my neighbors. "It cost me more to pull them, harvest and pick them once than the crop was worth." This is true; but he could not reasonably expect any other result. He planted on a tough sod, that was so wet as not to be dry enough in time to plant to corn, and was, besides, full of thistles. Last summer in this section was very wet; the beans could not be cultivated before the thistles were several inches high, and the labor of hoeing was so great, that a man had to work hard to hoe half an acre a day;—and this work had to be done in the midst of haying. By the time the beans were ripe, the land was again full of thistles and weeds, and it hardly needs to be said, that pulling was a slow and unpleasant operation. The weeds too, retarded the ripening of the beans, and it was difficult to cure them properly. Many of them mildewed; some of them rotted; the yield was light, and the whole crop had to be hand-picked. This was his first experience in bean culture and he is disgusted.

Nevertheless, beans, when properly managed, are a profitable crop, and the bulk of the labor comes at a comparatively leisure season. They can be planted after all other grain crops are in, and are off the land in time to sow winter wheat. But you must have dry, clean land. Nothing is better than a two or three-year-old clover sod, top-dressed the fall or winter previous. Let the clover grow, or pasture it until the middle of June; then turn over the sod carefully and drill in the beans, in rows 2½ feet apart, and in hills 12 or 15 inches apart, five or six beans in a hill. Use the cultivator freely and they will grow rapidly and mature early. Scarcely any hoeing will be needed, though nothing pays better than to go over the field and cut out every weed. Land so manured and well cultivated will be in splendid condition for wheat.

Beans are one of the worst crops a negligent farmer can raise; but a very convenient and profitable one for the farmer who has clean, dry land. You can apply the manure on the sod during the winter, get its effect on the early spring grass and clover, and still have enough left (from the manure and from the clover and grass) to produce a heavy crop of wheat.

C. N. D., who has written a book on farming, writes me: "In the last *Agriculturist* you speak of a 'good superphosphate.' What do you mean, whose is it, where is it, and what does it cost?" A good superphosphate is made by converting the insoluble phosphate of lime in burnt bones, phosphatic guano or mineral phosphate into soluble phosphate of lime, by decomposing it with sulphuric acid. It is a good article when it contains from 12 to 15 per cent of soluble phosphoric acid. If it contains ammonia in addition so much the better. But I believe it is a mistake for manufacturers to make superphosphate from unburnt bones. They cannot make it cheap enough. The bone-dust is itself worth too much as a manure They should look for cheaper sources of phosphate of lime. It is not for me to say, who makes a good superphosphate.

No matter what branch of farming we discuss either theoretically or practically, we are brought back to the old, old story that, as a basis of successful operation, we must have dry, clean land. Everything must be directed to this one point. We can do nothing without it; we can do everything with it.

"For crossing with common Merino ewes, to raise lambs or sheep for the butcher, had we better use a Cotswold or a Leicester?" If we had any Leicester sheep, that had been kept pure since the days of Bakewell, I should prefer a high-bred Leicester ram. But I do not know of such a sheep in the United States nor in Canada. A dozen or more years ago, Mr. Stone imported some genuine Leicester sheep, but no one seems to have understood their value, and they have been scattered and lost. They were too small and delicate to suit the popular taste. But if we had them now, they would be of great value to cross with common Merino ewes.

We have three breeds of long-wooled mutton sheep to select from: The Lincolns, Leicesters and Cotswolds. And the question to be determined is, which of these three breeds is the best to influence our common sheep. They are all good sheep. So far as the breeds themselves are concerned, it would make very little difference which we select. But when our object is to improve common flocks, *pedigree* is all important. We must select that breed which, other things being equal, has been kept pure for the longest period. The "prepotency of transmission" will be strongest in that breed whose good qualities have been longest and most thoroughly established. As I said before, if we had pure Leicesters, these would be the best; but they are not to be had in this country, and probably not in England. In order to give them greater size and vigor of constitution, with more lean meat and better breeding and nursing qualities, the breeders are believed to have resorted to a dash of Cotswold blood. This has improved the sheep themselves, but weakened their power of transmitting their qualities. The Lincolns I know little about. Until within a few years, I had supposed that the Lincolnshire sheep had been so crossed with the Leicesters as to have become nearly or quite extinct as a distinct breed. It is claimed, however, that at least one flock of Lincolns was kept pure; and if so, I should expect that a thorough-bred Lincoln ram would have great power in improving a flock of common sheep. In the absence of pure Leicesters, we shall have to select from Lincolns or Cotswolds. As to which is best, I cannot say. The decision must depend upon which breed has the most desirable qualities and on *how long these qualities have been established.*

There can be no doubt about one thing. Many of the farmers, who last fall tried the long-wooled cross, will be disappointed, for the simple reason that they do not feed their Merino ewes well enough to secure a large flow of milk; and secondly because in nine cases out of ten, or ninety-nine cases out of a hundred, they used only common long-wooled, Canada rams.

Dressing and Cutting up Mutton.

No animal is more easily killed and dressed than a sheep, and the only obstacles to killing altogether upon the farm or away from the city, are, that sheep are so much more economically moved on their feet than dead, and suffer so much less than neat cattle from abstinence and thirst. When on the road, whether on foot or in cars, they lose flesh rapidly, even if they have the best of care, especially if they are very fat. Farmers have frequent occasion to kill a sheep or a lamb for their own tables. No fresh meat will keep good longer, none is healthier, easier digested, or better food. When properly cooked, no meat is more delicious or satisfying than well-fattened mutton. There is a very strong prejudice against it in many American families, because half-fed Merino mutton fried and greasy, served upon cold platters, eaten from cold plates tastes woolly, tallows up the teeth and is about as poor food as can be set before a civilized man. Whether it is roasted, broiled, boiled or fried, mutton should be served *hot* and eaten from hot plates; or, roasted or boiled it should be cold. It should never be cooked so as to lose all reddish color, except when old and tough, or when stewed, and it should never be eaten rare. Farmers may often with great economy keep a small flock of sheep well fed; yarding them nights, to be able at all times to kill one for food. We have little doubt they would find it much cheaper than to feed their hands and families so much upon salt pork. It would besides be healthier.

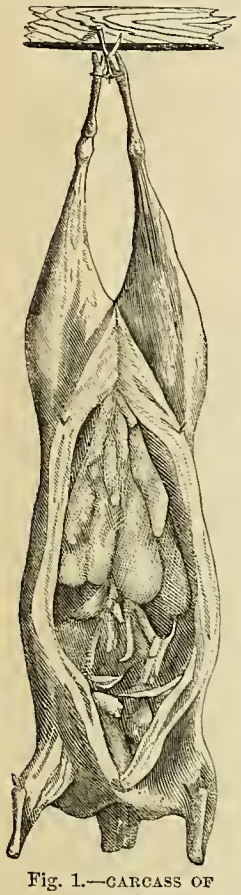


Fig. 1.—CARCASS OF MUTTON.

When a sheep is killed, its legs are tied and its throat cut. Perfect bleeding is secured by letting the head hang down over the door-sill, or tricing up one hind leg, thus partly suspending the body. The skin is removed by cutting along the belly and inside the legs. The head and feet are regarded as offal, and besides the tongue and brain there is little upon the head but dog-meat. When dressed for sending to market, paunch, stomach, and entrails, with the bladder and spleen ("milt,") are removed, leaving the heart, lungs, and liver, in place. The carcass is opened by a stick placed crosswise at the end of the ribs, or by pinning the flanks back, as shown in fig. 1. The interior should be wiped out with a damp cloth, and left sweet and clean.

When cold, the carcass may be split through the back-bone from the inside with a cleaver or knife and mallet. The outside view of one-half is shown in figure 2. A cut across the middle at the end of the ribs divides the half into fore and hind-quarters. Each is often cooked entire after being properly "jointed. To "joint" the hind-quarter or prepare it for roasting or boiling, cut through the spine at the vertebræ, not with a cleaver, which makes an uncertain cut, but with a strong knife and mallet; then cut the flesh of the leg free from the bone from the hock to the stifle joint, skewering the flesh over the end. The fore-quarter is often roasted (never boiled), and is best prepared by cutting off the neck proper, which makes a fair piece for a stew or haricot; taking out the shoulder-blade with as little meat adhering as possible, cutting between the vertebræ, as in preparing the hind-quarter; treating the breast ends of the ribs in the same way, so that when cooked they may be easily cut apart; taking out the bone of the leg to the elbow, and, finally, breaking all the ribs across through the middle.

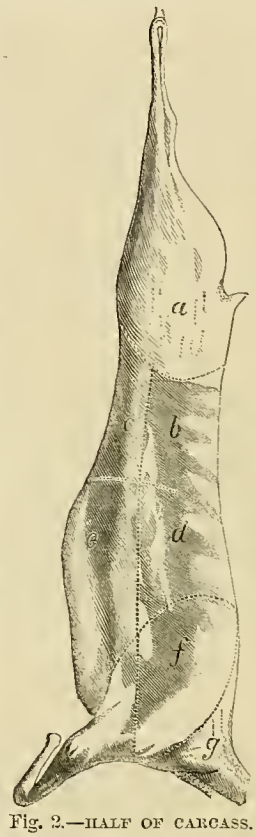


Fig. 2.—HALF OF CARCASS.

When the hind-quarter is cut up, the leg *a*, fig. 2, is removed by the cut indicated; this leaves the loin *b* and the flank *c*. These are often roasted together; cut apart, the flank is used for stewing, the loin for chops; which are best broiled. The shoulder is often cut from the fore-quarter and cooked by itself. The breast *e* being removed, the ribs *d* are cut apart for fore-quarter chops or cutlets, for frying.

MR. HARTSHORN'S FENCE.

Fencing across Streams.

We give herewith an ingenious and simple flood-gate or bars for fencing across streams. A model and description of it was sent to the *Agriculturist* by Mr. Asa Hartshorn, of Ashtabula Co., Ohio. The engraving, prepared from the neat model, precludes the necessity of a particular description. Mr. H. writes as follows:

"I assisted my father 50 years ago in making a set of bars in this way, in New London Co., Conn., and they remained good for 30 years or more. The posts or crotches should be fastened firmly by stones, or be set well into the bank of the stream. Two staples and one link are required to each bar. These should be made of $\frac{1}{2}$-inch iron. The other ends of the bars rest on $\frac{3}{4}$-inch pins. In time of a flood, one or more of the bars may float up and swing around down stream, and when the water subsides, they may be returned to their places. These floating bars have the advantage over any other gate, as they open and let all flood-wood and trash pass. I am an old man and have whittled it out, so you can see how it should be on the stream. The round top pole rests in the crotch of the posts above high water, and in this way any stream 25 feet wide can be fenced with safety."

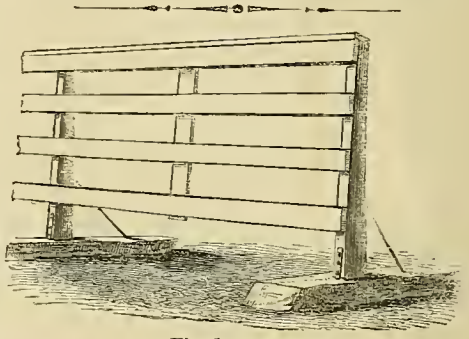


Fig. 1.—FENCE.

Fence Posts for "Heavy Land."

There are many sections in which limestone or sandstone rocks or boulders occur abundantly, which may be split into slabs of convenient size for the purpose indicated in the following suggestive communication. They are not unfrequently used for gate-posts and fence-posts, and of course are durable and excellent. "L. W. S.," of New Haven, Vt., writes, describing a plan which he has had in use and highly approves. There are many farms on which it may be imitated with profit. Wooden posts are expensive on account of the constant care attending their use from their decay and heaving by the frost. A post of this kind is valuable on account of the facility with which the fence may be shifted, as it is altogether upon the surface.

"Take flat stones (ledge limestone is best) from $2\frac{1}{2}$ to 5 feet long, 4 to 6 inches thick, and any convenient width, and drill inch holes 3 inches deep in one side of each stone, about 18 inches apart, or 9 inches from the center each way. Take $\frac{5}{8}$-inch round iron, cut 10 inches long; flatten one end about 4 inches, and punch two holes for screws. This is fastened on one side of each post with two screws, and inserted in one of the holes as in fig. 2. Then, for the brace, take pieces of the same-sized iron 25 inches long, flatten and punch as above stated, and insert the round end in the other hole, bend the iron to the post, and fasten; then fill the holes with melted brimstone, and you have a fence that will keep its place. I built some 25 rods in this way, three years ago, and it stands as true as when first finished. If it heaves in the winter, it settles back to its former place."

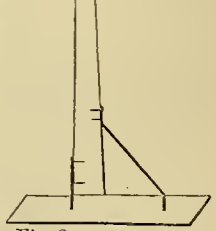


Fig. 2.—FENCE-POST.

Another suggestion comes from Mr. A. E. Smith, of New Haven Co., Conn. He recom-

mends the use of a $^3/_4$-inch rod of iron, bent in the middle over a mandrel of proper diameter, having its ends inserted in holes drilled about 3 inches deep, in flat stones about 18 inches square, as shown in figure 3. The fence is made by inserting strips or rails either lapping or cut beveling, and the beveled portions lapping between the parts of the post. Blocks of wood or pieces of board placed between the different ranges of strips would hold them at the required hights, as shown in figure 4. Several modifications of this fence are suggested. Mr. S. says: "Ordinary split rails trimmed a little at the ends, can be placed with the ends a little through the posts resting on each other;

Fig. 3.—IRON FENCE POST.

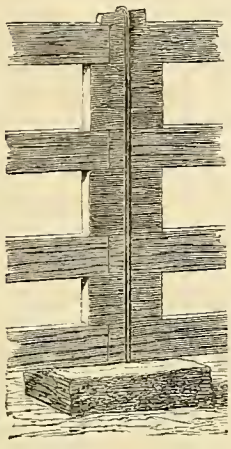


Fig. 4.

making a fence from which a length may be taken with little trouble, and which may be moved by taking apart, without injury, and with little expense. Two-inch plank, 5 inches wide, and 12 feet long, ship-lapped together at the ends with blocks 6 inches long, and any width desired, make a neat and durable fence. The stones should be left a few inches above the surface, and should be heavy enough to keep the fence in its place in a gale. Cement blocks might be used in the absence of stone—but in this State we can hardly imagine such a contingency."

We have seen fences made by boring holes through rails, or bars, and slipping the bars over single rods of iron set in stones in the way described; the bars forming adjoining lengths, alternately supporting one another. Mr. Smith's plan is a better one, as it admits of the easy removal of the rails, or the shifting of the fence.

Early Made Hay.

The practice of beginning to cut the grasses as soon as they are fairly in blossom is rapidly gaining favor. This favored time comes to many fields in this latitude, from the middle to the last of June. With the improved implements of hay-making—the horse-mower, rake and tedder, it is not difficult now for the farmer to gather all his hay crop at the time when it makes the most nutritious fodder. The early cured grass does not give so heavy a yield of hay to the acre at one cutting, and the same bulk will not weigh so much as the grass cured two or three weeks later. But very careful experiments show that the hay thus treated is much more nutritious; it is relished better by all kinds of of neat stock, and nothing is left in the manger. This tender, sweet hay is particularly important for sheep and young stock in the winter. If it do not bring so much in market or at the stables, at least, the hay, that is retained for home use, should be early cut. It does not exhaust the soil so much as where the seeds are allowed to mature. If the ground is very rich it allows of a second cutting in August. If not, it makes a heavy after-math and shelters the roots of grasses in the winter. The practice is increasing among our reflecting farmers, which is pretty good evidence that it is safe to follow.

Marketing Butter.

Having had several inquiries as to the best manner of preparing butter for retail marketing, we give the following account of the practice at Ogden Farm, which is similar to that of the producers of the celebrated Philadelphia butter, well known for both its excellence and high price.

The butter is all sold in half-pound prints, each of which bears the monogram or trade mark O F, as shown in fig. 1. These pats are $3^1/_2$ inches in diameter, rounded up in the center and about an inch thick at the edges. As soon as made, they are wrapped in damp cloths, about 8 inches square. The printing is done in a wooden cylinder $3^1/_2$ inches in diameter, of which the printing die forms the bottom. Fig. 2 shows a section of the cylinder with the parts in place. The walls of the cylinder are $^3/_4$ of an inch thick; *a a*, are brass screws, 2 inches long. There are three screws, which serve as legs to the mould; they may be turned in or out to regulate the quantity of butter; *b*, is the printing block, and *c*, the block on which it is supported. By substituting a thinner block in the place of *c*, heavier lumps may be printed. The butter is pressed closely into the mould and "struck off" even with the top of the cylinder. The pat is thrown out by pushing the block *c*, from below, mould and all going into cold water for a moment. It is necessary that all parts of the apparatus be kept soaking wet. The printing is laborious but it pays.

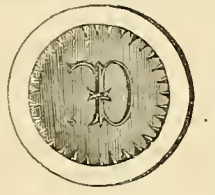


Fig. 1.—STAMP.

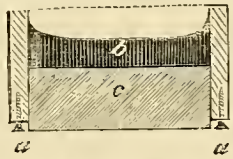


Fig. 2.—MOULD.

As fast as the pats are made and wrapped in cloths, they are packed in the market tub, fig. 3, which is 2 feet high, $2^1/_2$ feet long on top and 1 foot 7 inches wide. It is made of cedar, and is brass hooped and painted; the lid is hinged in the middle so that either side may be raised, or the whole may be lifted entirely off. One of the staves at each end rises about 6 inches above the top and has holes cut through for handles. An oak bar, with a head on one end and a hinged hasp (brass is preferable) on the other, is passed through these handles to hold the lid down.

Fig. 3.—BUTTER-TUB.

When it is pushed home, the hasp can be turned down over a staple at the end of the tub and secured with a lock or pin. This tub is only a case for the tin, ice, and butter tray which lines it. The ends of this tin tray are partitioned off at a width of about 6 inches, as shown in fig. 4, and the compartments so formed at the ends, which are for broken ice, are closed with hinged tin covers. The center compartment is fitted with tin studs supporting five tiers of movable wooden shelves; and each shelf consists of two pieces for facility of handling. The shelves allow, with the bottom, six tiers of prints. A section of this tray, packed with butter and ice, is shown in fig. 5. Packed in this way, a blanket being thrown over the tub in the wagon, butter may be carried around for a whole day in the hottest summer weather, without losing its hardness.

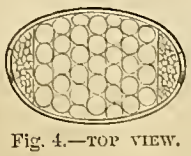


Fig. 4.—TOP VIEW.

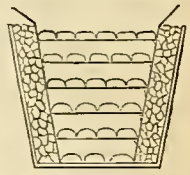


Fig. 5.—SECTION.

More Styles of Tail-board Fastenings.

During the year past we have exhibited several forms of tail-board fastenings, which to us, and most of our readers, have, at least, had the merit of novelty. Some have been great improvements upon the old rod and tail-nut, and all have had some feature to recommend them either for dumping carts or wagons. Now we have two more to show. The first, fig. 1, is from Isaac S. Bachtel, of Stark Co., O., who writes: "I first saw this tail-board fifteen years ago. You will observe it may be loosened from either side, and swung open like a gate, or it may be taken out altogether. A chief merit is that there are no strips in the corners of the box. I use it behind and before on that account." The fastening of each end consists of two semi-circular straps of $^1/_4$-inch iron, one

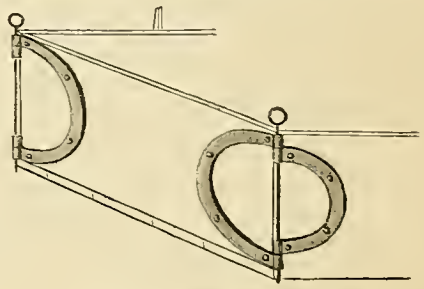


Fig. 1.—TAIL-BOARD FASTENING.

attached to the tail-board, the other to the outside of the box, and forming a hinge when united by a $^1/_4$-inch rod passing through their bent ends. This rod when withdrawn to disengage the board, should be immediately replaced.

The other plan is sent us by Mr. C. H. Rue, and consists of a slight modification of the common rod. A rod of the usual size, say $^1/_4$-inch iron, is fixed upon the tail-board, as shown in fig. 2. This rod terminates in a strong hook at each end. These hooks go into eyes in bolts, one or both of which are fastened with tail-nuts, and having some play, so that after the hooks are in they may be screwed up tight. A few turns of the nut are sufficient to relieve the strain upon the hooks, and the rod having a little play when one hook is loose, the other is easily unfastened. The bolts are inserted a little lower than

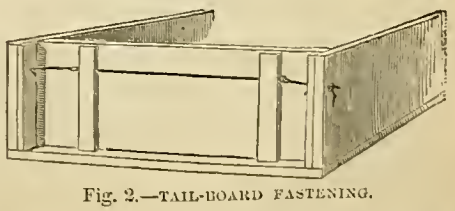


Fig. 2.—TAIL-BOARD FASTENING.

the line of the rod, so that when screwed up the board will be held down and kept from rattling. The cheapness and convenience of the arrangement are apparent and well worth imitating.

Classification of Breeds of Fowls.

The following communication from Jas. H. Fry & Co., of New Brighton, N. Y., opens a subject of interest to poultry breeders, and upon which all will not agree. In the main, the classification is doubtless correct.

"In the production of that great variety of fowls which challenges the admiration of the public at our poultry shows, the attention of breeders has been turned mainly in three directions, viz.: to produce eggs, flesh, or feathers. Consequently we have some varieties prominent as prolific layers; others which are chiefly valuable as table birds; and still others which are admired on account of their diminutive size, or the beauty of their plumage.

Among these various breeds, there are still other distinctions; some varieties being non-sitters; others periodically broody; some quiet and domestic in their habits, bearing confinement well, and never seeking to roam far from home; others wild and vivacious, chafing under confinement, or if at liberty, roaming far and near, from early morning until sunset; some are fair winter layers, others even under the best of treatment are almost exclusively spring and summer layers; some are hardy, others are delicate; some lay large eggs, others small or medium sized ones; and there are many other minor peculiarities which we have not space to notice here. A knowledge of the more prominent distinctions of the several varieties will determine the selection of a purchaser of fancy poultry. To obtain this knowledge from any work on poultry which we have seen, it will be necessary to wade through a considerable amount of dry detail. We have therefore thought it would not be uninteresting to your readers if we furnished a condensed classification of the various breeds, under the headings suggested above. Indeed, the propriety of furnishing this information through some popular channel of communication has been strongly impressed upon us, by the many questions which our correspondents have put to us. We therefore offer the following as the result of our present experience.

A—Prolific Layers.—Hamburgs, Spanish, Leghorns, Polands.

B—Rapid Flesh Makers.—1. La Fleche, Houdans, Crevecœur, and Dorkings; these four varieties are the true table birds. 2. Cochins and Brahmas; these are more muscular and more heavily framed than the four varieties first named under this head, and their flesh is not so white and juicy, hence we class them as inferior in this point.

C—Ornamental.—Bantams, Silkies Sultans, Rumpless, etc.

D—Non-sitters.—Houdans, Crevecœur, La Fleche, Spanish, Polands, Hamburgs, Leghorns.

E—Sitters.—Cochins, Brahmas, Dorkings, Games.

F—Domestic and Quiet.—Brahmas and Cochins.—These birds are very sluggish in temperament, and can be penned in with a fence three feet high.

G—Active and Vivacious.—1. Hamburgs and Games.—A fence twelve feet high will not restrain these varieties when startled. 2. Spanish, Leghorns, Dorkings, and the French varieties. All of these will require a high fence to keep them in, though the Dorkings and French fowls being heavy birds cannot rise upon the wings as well as the Spanish and Leghorns.

H—Hardy.—1. Brahmas. These birds seem to endure the coldest weather without injury. 2. Houdans, Hamburgs, Crevecœur, Spanish, and Leghorns.—Except that their combs are liable to be frozen, the birds under this second division bear exposure well in winter.

I—Delicate.—La Fleche, Polands, and most of the Bantams and ornamental fowls.

J—(1) *Layers of Large Eggs*, averaging about 7 to the pound.—La Fleche, Houdans, Crevecœur, Black Spanish. (2) *Layers of Medium Eggs*, averaging from 8 to 9 to the pound.—Leghorns, Cochins, Brahmas, Polands, Dorkings, Games, Sultans. (3) *Layers of Small Eggs*, from 9 to 10 to the pound.—Hamburgs.

K—(1) *Large Birds.*—Cochins, Brahmas, La Fleche, Houdans, Crevecœur and Dorkings. (2) *Medium Sized Birds.*—Polands, Spanish, Leghorns and Games. (3) *Small Birds.*—Hamburgs, Sultans. (4) *Diminutive.*—All the Bantams and Silkies.

The positions which we have assigned the various breeds in the foregoing classification, will, in the main, be accepted by poultry breeders without challenge. The classification will necessarily provoke criticism upon some points. We offer it simply as an expression of our experience to the present time."

Put in Roots.

With too many of us roots for cows and other stock are regarded as entirely secondary to the main crops of grain and potatoes, and so are neglected until after corn is planted, if not altogether. Swedish, or Russian turnips, as they are often called, do not need the whole season to grow, and if sowed by the first of July, are in early enough, except on some cold, hard soils, where full crops can hardly be expected at all. On such ground it seems as if Ruta-bagas required the whole summer to make roots and establish connections with the soil, so that they may make their great growth in the autumn.

When Swedes (ruta-bagas) are to be grown, the early part of June should be devoted to preparing the land by manuring and deep plowing, and such thorough harrowing and tillage as shall kill at least two crops of weeds. A Shares' harrow will be found a very efficient tool for preparing a mellow surface. Between the 20th of June and the 20th of July, according to circumstances, mark out the land in drills 30 inches apart, and sow, in the drills, by hand, about two barrels of good superphosphate to the acre. This should be sifted and free from lumps, and sowed evenly, a little scattered. Then, with a hand seed-drill, sow the seed at the rate of one pound to the acre, that is, use as little seed as possible. The early part of the month is not too late to get a fair crop of carrots and parsnips, and a moderate one of mangels or sugar beets on rich soil. We can hardly urge the cultivation of roots too strongly. No crops pay better on milk and sheep farms. Near city markets, where ruta-bagas can be sold, the late-sowed ones which do not get so large bring a better price.

COUGH AND HEAVES IN HORSES.—A western physician of our acquaintance, who keeps several horses finds sunflower seed a valuable remedy for cough and heaves. So useful does he consider it, that he is careful to keep a good supply of it always on hand. He claims to have cured a marked case of heaves by feeding a quart or two of the seed daily, and when any of his horses or mules show a disposition to cough, a feed of sunflower seed is given at once, and continued until relief is afforded.

It is said that on the prairies where Rosinweed (*Silphium terebinthinaceum*) is abundant, that horses never have the heaves—and that the resinous leaves of the plant are dried and fed in moderate quantities with beneficial results.

The Preparation of Tobacco Land.

The most important requisite in attempting to raise a tobacco crop is a rich and well tilled soil. As to quality, aside from manure, any soil in a tobacco region which would rank as first-class corn ground may be adapted to tobacco. The amount of manure which may be profitably applied can hardly be estimated. We have never known tobacco land too rich, though too much of guano, and perhaps of other concentrated manures, is disadvantageous. It would, perhaps, be safe to say: let the manure applied be worth half what you expect to realize from the crop. The best manure is doubtless barn-yard manure, which has been made from well-fed, mixed stock, and which has lost nothing by fire-fanging nor by water. Ashes, leached or unleached, are always valuable. Salt, plaster, and lime are uncertain in their effects. Peruvian guano, superphosphate, bones, etc., are always useful in moderate quantities.

The yard manure should be spread and plowed in deep, then hand manures sowed on and put under the surface with a Shares' harrow. Then, as soon after the middle of the month as possible, mark out the field as for corn of small growth, and set out the plants on the first rainy day, selecting the largest first. Water the seed-beds thoroughly before moving the plants, and give them a good application of liquid manure after taking out those needed the first day. The plants are set out precisely as cabbage plants are, but not so near. The rows are usually $3^1|_2$ feet apart, and the plants are about $2^1|_2$ to 3 feet apart. If the grub or cut-worm destroys any, or if any die from whatever cause, replace them at once. The tillage should be like that required by cabbages, but no hilling up around the plant of any account should be done.

Prize Essay on Making and Packing Butter.

BY MRS. M. A. DEANE, FARINA, FAYETTE CO., ILL.

MANAGEMENT OF THE MILK.—The advantage gained during the hot season by the rapid and complete cooling of milk as soon as it comes from the cow, can hardly be over-estimated, as recent experiments show that the milk, thus cooled, will keep sweet much longer and yield its cream more readily and more abundantly; and, as all experience has proven that the quantity of butter made, depends greatly upon keeping the milk in such a state as to secure *all* the cream. A saving of labor is effected by this process, as the milk, when cooled to the required temperature (60°), may be set in deeper vessels, thus diminishing, greatly, the number of vessels required, and, consequently, the labor of cleansing them.

In a large dairy, the washing and scalding, of the shallow pans so much in use, is always a laborious and tedious process. There are many methods, more or less simple, for cooling milk. Patents have been granted for various plans, and many enterprising dairymen are testing ingenious devices of their own, with excellent success. If it is not convenient to procure a cooler, the milk may be cooled by setting some large pails into a trough or box, partly filled with very cold water, and pouring the milk into these pails as fast as it is drawn from the cows, allowing it to stand until of the required temperature; if necessary, renewing the water.

The Pails used in milking should be made of tin, never of wood. It is very difficult, almost impossible, to cleanse wooden pails so perfectly that they will not impart some degree of acidity to the milk, though it may be an insensible degree. Owing to this fact, some factories make it an absolute requisition that only tin pails shall be used by those who furnish them with milk.

The Dairy-Room.—Much of the success of butter-making depends upon the fitness of the place or room where

the dairy is kept, and upon its condition as to cleanliness and freedom from taints and odors of every description. If a cellar is used, it should be a dry one, and perfectly clean to the remotest corners, having no hidden remnants of decayed vegetables or fruit, or anything which could possibly offend the most delicate olfactories. If a room in the dwelling-house is used, or a milk-house, built separately, which is, perhaps, better, it should not be situated near a hog-pen, stable, or anything of the kind, nor should anything likely to impart its odor to the milk, as smoked ham, codfish, onions, or even potatoes, be allowed a place in the room. Nothing will receive a taint more easily than milk or cream; and all bad odors absorbed by the milk, are certain to be concentrated in the butter, they not having the accommodating disposition to run off with the buttermilk. We have known butter to be spoiled in consequence of the milk standing in the room with a smoky furnace, and it is sometimes sensibly affected by the smoke of burnt grease and other unpleasant smells from the cook-room. So if a milk-room communicates with the kitchen, the door should be kept closed.

Temperature.—The milk, whether in a cellar or in a room above ground, should be kept cool in the summer, never being allowed to reach a temperature above 60°, though it may fall below that without detriment. Milk should be set upon racks, rather than shelves, so that the air may circulate freely under it, as well as over and around it. Racks are made in various ways; the most convenient we know of is constructed as follows: Take a 6×6 pine post, of a length suited to the hight of the room, place it upright upon a pivot so that it will revolve, and nail slats of half-inch stuff to each side of the post, at such intervals as will give room for the pans or other vessels used. Two such slats nailed to opposite sides of the post, will support two pans of milk, one on each side of the post. The rotary arrangement enables one to stand in the same place to skim a whole rack full of milk. If pans are used, the seamless ones are best, but deeper vessels, either of tin or earthen-ware, are perhaps preferable, provided the milk is cooled before being set.

Washing the Utensils.—The greatest care is requisite in cleaning these vessels, of whatever material or form, as also of all the other utensils employed in butter-making. This is a matter of much greater importance than many suppose, as the smallest neglect in regard to it is sure to tell upon the cream and butter. The pans and pails should be washed thoroughly, in two waters, each time being made as clean as possible with the water used; they should then be scalded thoroughly with boiling water. It is not sufficient that the water should be tolerably hot,—that it should steam in the kettle, or anything of the sort; it must "*dance* as well as sing." The churn, butter-bowl and ladle, or butter-worker, if one is used, should be washed and scalded with equal care, and all should be carefully wiped and dried, unless some arrangement is made for drying in the sun, which will do very well for tin and earthen-ware, and save the labor of wiping. In summer it will be necessary to see that all utensils are cooled perfectly, before using them.

Skimming.—The milk should be skimmed as soon as all the cream has risen, and before the milk has thickened. The exact time required for the cream to rise, will, of course, depend upon the temperature, but a little experience will enable one to tell. At the time the cream should be removed it will have a bright, healthy appearance, a rich, yellow, uniform color, and such an adherency of particles as will enable one, sometimes, to remove the entire cream at one dip of the skimmer. If allowed to stand too long without skimming, both the quantity and quality of the cream will be seriously affected. The surface will become discolored, blotched and knobby, while underneath, the cream is rapidly yielding to the corrosive tendency of the acid in the milk. The thickest cream may be as surely destroyed by standing on the milk, as would be the firmest fabric in a bath of sulphuric acid. When thus destroyed, the cream is replaced by a thin, watery substance, having no resemblance to cream or milk. These facts, which may be easily verified, show how essential it is that the cream should be taken off before the milk has acquired any great degree of acidity. Yet, in order to make the largest quantity of butter, care must be taken not to remove the cream too soon. Many neat, thrifty housewives make a practice of "skimming up" all the milk at stated intervals, so as to be through with the job. This is, of course, very pleasant, but it involves considerable loss; as they do not get the full cream from the newest milk. The milk should all be skimmed at the same age, provided it has had the same conditions as regards temperature, etc.; it follows, then, that some milk should be skimmed every night and morning.

Winter Treatment.—It will be found that in winter, milk and cream require somewhat different management. The effort must now be to keep the milk *warm* enough rather than to keep it cool; and a failure in this respect will very materially affect the quality of the butter. If the milk is very much too cold, it will have to stand so long for the cream to rise, that it will become bitter, often long before it becomes sour, and the quality of bitterness will be still more apparent in the butter. To prevent this, the milk should be kept at a temperature of 60°, if possible; if not, the milk may be scalded as soon as strained, and the cream will then have a fair start before the milk has parted with this extra heat, unless the place where it is kept is very cold. If scalding is not found sufficient, two or three spoonfuls of sour milk (which has soured quickly and is not bitter) may be added to each pan of milk when it is set away. This will help to sour the milk and cause the cream to rise quicker, thus making it less liable to become bitter. It may also help to prevent bitterness to salt the cows often, and see that they do not eat decayed vegetables or any substances which may impart a bad taste to the milk.

The Cream should be kept at about the same temperature (60°), and should be well stirred as often as new is added. It should not be kept too long before churning, never more than a week—four or five days is better.

Churning.—The cream should be churned at a temperature of 62° or 63°. A great deal of experience may enable one to guess at this temperature with tolerable cleverness, but it is better to use a thermometer and be sure. This temperature will be increased during the process of churning, to 68° or thereabouts, when the butter will come. If it should be hard and granular, refusing to come together well, throw in a little warm water, churning all the while, and the butter will soon be gathered and ready to take up.

Sweet cream should never be mixed with sour cream just before churning, as sweet cream is much longer coming, and hence, likely to lose itself in the buttermilk. To salt the cows once a week is generally believed to facilitate the process of churning. In case they have not been thus salted, some put a little salt into the cream before churning; but we think that in most instances where butter is very long coming, it is owing to the temperature of the cream. It may be so cold as to require churning all day to bring the butter; a tax upon one's patience and strength, if performed by hand, equal to the cost of a dozen thermometers.

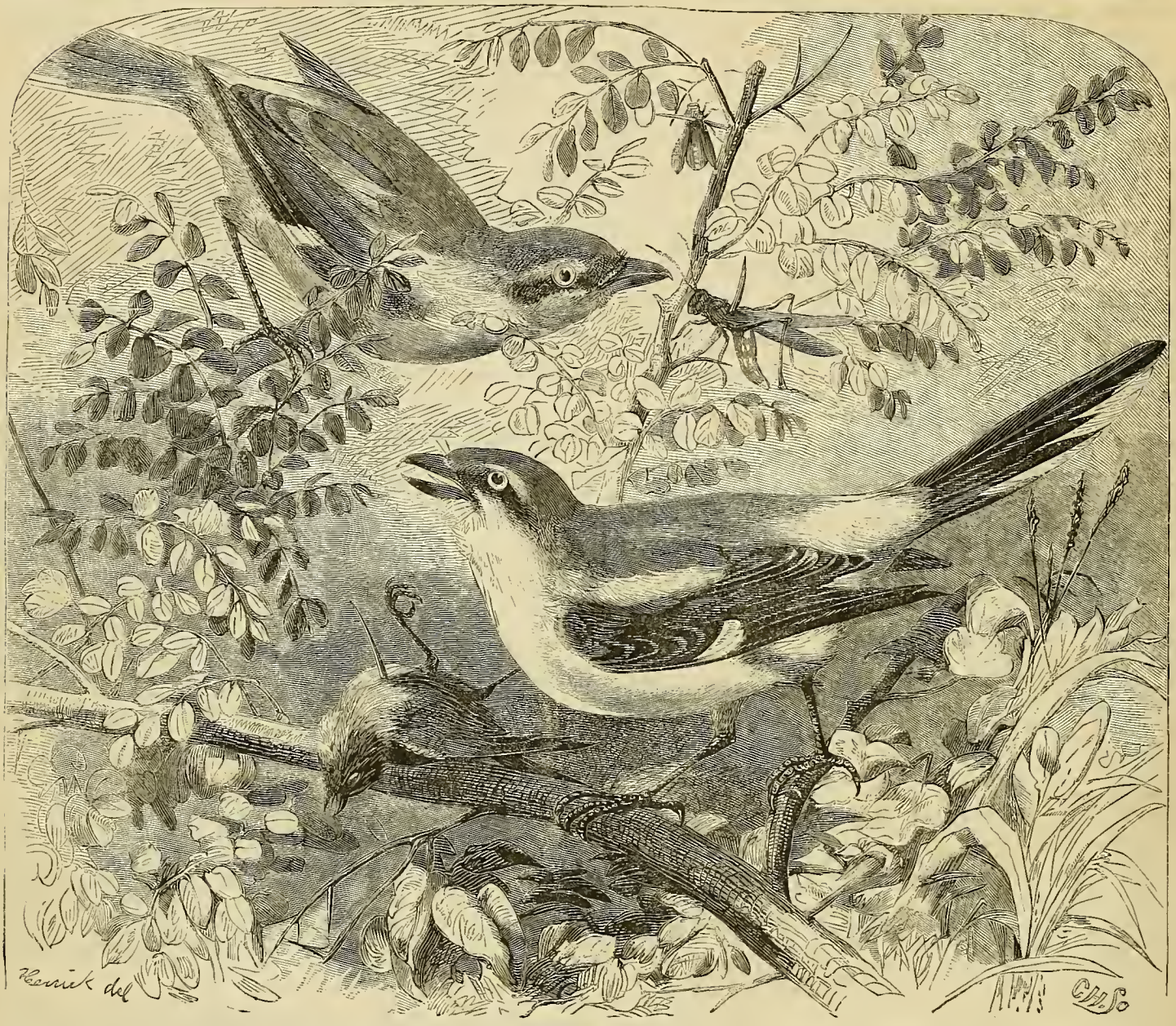
Coloring.—As a rule, it is absolutely essential in the winter to color butter, in order to make it marketable, or at all attractive as an article of table use at home. There may be a possible exception to this rule, in cases where cows are fed largely upon yellow corn-meal, pumpkins, carrots, etc., but this does not lessen the importance of the rule. Of the various substances used in coloring butter, we think that carrots (of the deep yellow variety) give the most natural color and the most agreeable flavor. Annatto, however, is principally used, and with most satisfactory results. Some of the most celebrated butter-makers in the country color their butter with pure annatto, giving it a rich, deep orange color. They do not aim to produce the color which is natural to summer butter, but one considerably richer; coloring it both summer and winter. If carrots are used, they should be grated, the juice expressed through a thin cloth, and put into the cream just before churning. A small quantity of annatto, dissolved in warm water or milk, may be used in the same way, and with similar results; but a richer tint is produced with annatto by coloring the butter directly. To prepare the annatto for this purpose, steep it in butter for some hours over a slow fire, then strain through a fine cloth into a jar and keep in a cool place. When ready to work the butter, melt a small quantity of this mixture and work it in carefully. A small proportion of turmeric is sometimes mixed with annatto and prepared in the same way. With this method of coloring, an inexperienced hand is in danger of working the butter too much, in the effort to produce the same shade of color through the entire mass, which is, indeed, a difficult attainment for a novice. Coloring in the cream obviates this difficulty entirely, the butter being of a uniform color when taken from the churn.

Salting and Working.—While salt is not to be undervalued as a preserving agent, it must be remembered that too much of it destroys or overpowers the fine flavor and delicate aroma of the best butter. Be careful to preserve all the sweetness of the fresh butter, salting just enough to remove its insipidity. It is important to use the best salt. "Ashton's Factory Filled," has great fame, and is extensively used. But any one can test the purity of salt, and perhaps other brands of Liverpool salt may be found equal to Ashton's. Pure salt is perfectly white and destitute of odor. It will dissolve in cold water without leaving any sediment, or throwing any scum to the surface, and the brine will be as clear as pure water, and entirely free from any bitter taste. Prof. Johnson says in the American Agricultural Annual, 1868, that the "'Onondaga Factory Filled' must take rank second to none, provided the ingenious processes of Dr. Gossmann which were employed in Syracuse, a few years since, are still in use." The butter milk should be nearly all worked out and the butter well washed, before salting. Washing may abstract somewhat from the flavor of the butter, but it is, nevertheless, a necessity, if the butter is expected to keep long, as it completely removes the cream and casein of the buttermilk, a part of which might otherwise remain in the butter.

Butter should stand but a short time after salting, before it is worked enough to remove nearly all the water, when it may be resalted if necessary; there should be sufficient salt left in the butter at this time to make a strong brine of the little water that remains. It may then stand until the next day, when it should be worked and packed. On no account should butter be allowed to stand long before working, as it is apt to become streaked, often so much so as to necessitate working over, in order to restore a uniform color. Besides, if neglected too long at this period, a tendency to rancidity will be rapidly developed.

We realize the difficulty of giving explicit directions for the second and last working of the butter—its final preparation for packing. If not worked enough, every one knows that the butter will soon spoil; if worked too much, it is spoiled already; though the danger of its being overworked is less. A great deal of judgment and discretion and somewhat of experience, are requisite in order to determine when it is worked just enough; the virtue of stopping, in this, as in many other cases, being second only to that of doing. There are some suggestions, however, which may prove valuable, particularly to those having little experience. 1st. The butter should not be too warm when worked, nor should it be so cold as to make working difficult. Immerse the ladle for a few minutes in boiling water, and cool perfectly in cold water: then, if the butter in the bowl is warm enough to admit of putting the ladle through the whole mass without difficulty, and dividing it up without crumbling, and still hard enough to cut clean and smooth, not the slightest particle adhering to the ladle, then it is in the right condition to work. 2nd. It should be worked with careful and gentle, yet telling *pressure*, and not by a series of indiscriminate stirrings and mashings and grindings against the sides of the bowl. The butter is composed of minute globules, which are crushed by this careless handling, thus rendering the butter greasy and sticky, whereas it should retain its clean, solid individuality, up to the time of packing, always working clear from the bowl and never sticking, in the least, to the ladle. 3d. The butter should not be worked until it is perfectly dry. When ready to pack, it should have a slight moisture about it, a sort of insensible remains of the clear brine which has been working off, and at the last, enough, so that when a trier is thrust into it, a drop or two of brine will ooze out around it, and the trier itself be slightly wet, as if by a light dew. Overworking destroys all the beautiful consistency of the butter; makes it dry and sticky; greasy in summer, and tallowy in winter; gives it a dull appearance, and a tendency to become rancid. Altogether, overworked butter is very disagreeable, if not positively bad.

Packing and Marketing.—Butter should be packed solid, leaving no interstices for air, and should completely fill the firkin, tub or pail, as the case may be, leaving a flat surface. It is common to put a cloth over the top and a layer of salt on the cloth. Some think it better to wet the salt, making a brine. The cover should then fit tightly, leaving no room for air between it and the butter. Some butter also, goes into market in the form of rolls, some pineapple, and other fancy forms for the table, etc. Every person should be guided by circumstances in his choice of styles for putting up butter, always being careful to give it a neat and attractive appearance. If living at a distance from market, and the dealers at his market-place buy for New York, he should pack in firkins or tubs, so that the butter can be safely kept through the season, and the whole lot disposed of at once, in the fall. If at a convenient distance from New York, fresh tubs or pails may be sent in at intervals, all through the season, or the whole kept through, as he chooses. Or if in the vicinity of any city, good chances offer in the way of supplying hotels, restaurants, etc., the butter should be put up in a style to suit the customers. Some, who are hundreds of miles away, make shipments of butter to New York on their own account, instead of selling to buyers at home, in which case, if their butter is really superior, they will not be long in making a reputation, and will soon be able to secure a high price. Some few have a stamp of their own, and labor assiduously to establish a value for it, as a trade-mark. It is said that the best butter-maker in the vicinity of Philadelphia (who never sells for less than a dollar per pound), uses a stamp inherited from his father, and that "not a pound of inferior butter ever went to market with that stamp upon it." If you would attain to a goodly fame, then, as a butter-maker, and reap a rich reward for your pains, attend carefully to the minutest details in making, and never sell any but good butter, put up in neat packages; never allow your "trade-mark" to lose its value.



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THE GREAT NORTHERN SHRIKE OR BUTCHER-BIRD—(*Collyrio borealis.*)—*Drawn by H. W. Herrick, and Engraved for the American Agriculturist.*

The Shrikes and the Fly-catchers form a small family of birds, the members of which have a strong and compressed bill, which is abruptly hooked at the tip, and the upper and lower half both strongly notched. They are all carnivorous, feeding on insects, reptiles, and smaller birds. We have but four Shrikes in North America, and only one of them common in the Northern Atlantic States, where it is generally known as the Butcher-Bird. Its name of Great Northern Shrike would convey the idea of a large bird, but it is only a little larger than the other species, and at most only about 10 inches long, and of the form shown in the spirited drawing by Mr. Herrick. The upper parts of the head and body are of a bluish-ash color, the under parts white; the wings and tail are black. The bird is found from the Eastern United States to Vancouver Territory, building its nest in the smaller trees or tall shrubs. It is especially noticeable for its disagreeable qualities. It possesses a remarkable power of imitating the sounds of other birds in distress, and thus attracts the attention of smaller birds, which come to the aid of their supposed fellows in trouble and fall victims to the strong bill and sharp claws of the Butcher-Bird. It is said that it will even attack birds confined in cages, coming fearlessly near dwellings for the purpose. It is altogether a very quarrelsome and unamiable character. Not only does it destroy defenceless birds, but it seems to be proud of the achievement, and hangs them up as trophies. Instead of devouring its prey at once, it impales it upon a thorn or sharp twig. The slender thorns of the Three-thorned Acacia are favorites with the bird for this purpose, and it is not rare to find this tree decorated with the dead bodies of small birds, as well as those of different insects which have been suspended there by the Butcher-Bird. What object the bird can have in thus suspending its dead prey, seems to be a puzzle to naturalists. It probably has similar tastes to those gourmands, who prefer to have their game hang until it is on the verge of decay. A related species is common in Continental Europe, and has similar habits.

To prevent Birds pulling Corn.

There are numerous devices for keeping the birds away from corn, among which are scarecrows, wind-mills, bits of tin hung on strings, suspended twine, and powder and shot. We had faith in the stuffed man, until we saw the birds use him as a roost; in the twine, until we found corn pulled up right under the strings; and in shooting, until we found, we had to keep a man in the field all the while there was danger, in which case, the man would answer without the powder. Where the services of children are available, continual watching for two weeks, will save the corn. But this is not always the case, and the cornfield is often at a distance from the dwelling. Coating the seed in tar, is one of the best safeguards we have ever tried. The strong odor is offensive to the birds, and after a few trials of the article they quit in disgust. Caution however should be used in putting on the tar. The thinnest coating is just as effectual as one that will prevent germination. Stir in with the seed the smallest quantity of tar that will give a coating, and to prevent the adhesion of the kernels, stir in plaster, ashes, or dry earth. If the tarring has been neglected, and the corn is already up, it is a great safeguard, to sow corn broadcast at the rate of two quarts or more to the acre. The birds will take the corn that is most accessible, and leave that which is below the surface, or just sprouting. If one is not a disciple of Bergh, and wishes to multiply insects, let him poison the sowed corn. He can bag his game at leisure, but he would also be likely to bag less fruit and grain.

The Jasmine-like Bouvardia.

(*Bouvardia jasminoides.*)

The Bouvardias are among the most valued green-house plants; whether to the commerical florist who sells cut flowers, or to the amateur or gardener who wishes to have his houses gay in winter. Some of them are useful as bedding out plants, and flower freely during the summer. The colors run from white, through flesh-color and rose, to intense scarlet. Last autumn some of our florists imported from England the Bouvardia jasminoides, which is regarded as the most valuable addition to the list of winter-flowering plants that has been made for years. The engraving gives a flower cluster of the natural size. What gives it especial value is the pure white character of the flowers, which have a delicate jasmine-like fragrance. Flower dealers are aware that the demand for white flowers is three times greater than that for colored ones; and every winter-blooming plant, that produces delicate white flowers freely, is looked upon with great interest. Unlike some of the Bouvardias, the one under notice is easy of propagation. We believe that it has not yet been offered for sale, but as it is in the hands of several of our florists, it will no doubt be obtainable as soon as a good stock of it has been propagated.

THE JASMINE-LIKE BOUVARDIA.—(*Bouvardia jasminoides.*)

The Large-leaved Saxifrages.

The majority of the Saxifrages in cultivation are small alpine or sub-alpine species, that require a rock-work and shade for their successful growth. There are a few very robust, large-leaved species that flourish well in a common garden border. The one we have figured, the Thick-leaved Saxifrage (*Saxifraga crassifolia*), will serve to show the general appearance of this group. The plant forms clumps, consisting of half a dozen or more divisions like the one shown in the engraving. The leaves, which are 6 to 9 inches long, are thick and persistent through the winter. Early in April the flowers appear, beginning to open down among the leaves, but as the season advances they are lifted up by a stem about a foot high, and the, at first, compact cluster, expands. The flowers are of a lively rose-color, and last for some weeks. Nearly related to this are the Heart-leaved and Strap-leaved Saxifrages (*S. cordifolia* and *S. ligulata*), which much resemble the Thick-leaved in the flowers, but differ in the shape of the foliage. They are equally hardy with it and bloom at the same time. *S. purpurascens* is a fine species, but not hardy. The first mentioned species is a native of Siberia, and the others are from Nepâul. These Saxifrages propagate slowly by division, and unless they can be readily raised from seed they will never be very abundant. They are valuable plants on account of their great hardiness, their broad green foliage, and early flowering.

THE THICK-LEAVED SAXIFRAGA.—(*Saxifraga crassifolia.*)

Celery Culture.

BY PETER HENDERSON.

What I have previously written about growing celery comprised the main features of its culture as practised by our market gardeners in the vicinity of New York; as we are again at the season of planting, numerous inquries render it necessary to say something more upon the subject.

I will not allude to our method of raising the plants from the seed, as it is too late to do it this season; and in fact we have made no improvement on the system already described. The time of planting out in the Northern States may run from June 15th to the end of July; and in the Southern States from August 15th to the end of September. The great difficulty experienced in the Southern States is in raising the plants; for if sown in March or April, as we do here, the high temperature and dry atmosphere either kill the plants outright, or so shrivel them up that they never start to make a free growth. There is no way of obviating the difficulty, unless by getting the plants grown at the North to be sent South. But Celery plants grown at the North at the usual season, would not answer, as they would become so large that they would require to be planted out before the end of July, and in most of the Southern States, if planted then, they could not stand the long continued high temperature and dry atmosphere of August and September. For celery plants, grown at the North for Southern planting, the seed should not be sown before the end of May, which would delay their fitness to plant until August or September; this would no doubt answer well, as the genial growing weather of October, November, and December, in many parts of the South, would be well adapted to their growth. It is doubtful if this special growing of plants is likely to be done, and our friends at the South must submit to paying us for our celery already grown, just as we must submit to have the cream of our profits taken off by their early supply of spring vegetables. It is a geographical condition of culture that both sections must accept.

Celery should always be planted on the level surface of the ground; never in a trench, which is the European method, and the one which three out of four of our private gardeners yet practise here. The soil best suited, is a deep rich loam; nothing is better than a well drained meadow or bottom land; if black and peaty it will answer quite as well, but it must be free from water. Celery, though it grows in its wild state in wet ditches, is as susceptible to injury from excess of moisture as a cabbage. In new lands broken up from sod, and where the turf is well decomposed, but little manuring is

necessary for the first season, as the vegetable fibre remaining in the soil, in most cases, will be sufficient; but on old lands, continued and heavy manuring, not less than fifty (50) tons to the acre, is indispensable. This, however, we put on with our *first crop* of Beets, Onions, Cabbages, Radishes, Potatoes, or Spinach. These being marketed by the first or middle of July, the ground is at once plowed up and well harrowed down to receive the celery crop. The manure applied in spring being diffused through the soil by plowing and harrowing, answers to carry through this crop also.

The variety of celery that we still like best for this section, is the "Incomparable Dwarf;" this, when grown for market, is planted at from 2½ to 3 feet between the rows, and from 5 to 6 inches between the plants; this distance gives from 30,000 to 35,000 plants per acre. The average price in the markets of New York during the past fall and winter was 3 cts. per root at wholesale—or, for the gross receipts, fully a thousand dollars an acre. But the celery crop of 1869 was unusually short, owing to a deficiency of plants at the planting season, which, together with continued unfavorable weather in September, occasioned an unusually short crop; this caused the price to range about one-third above the average.

We now put more labor on this crop than we did a few years ago, and find it more profitable to do so. In former years only that portion required to be blanched for use in fall, was "banked up" to the top of the plant with the spade, now we find it pays us to "bank up" all, even if it is not wanted for use until March; only taking care that the "earthing," or "banking up" process, for that wanted last, is delayed as long as possible. That required for use in October is earthed up to the top of the leaves in September; that for November in October; but that for winter and spring use is not earthed to the top of the leaves until November. Thus protected by the earth, we can leave it exposed, as it stands with safety in this section, to the end of November; about that time we take it up and pack it away in the trenches; for a description of this method see *Agriculturist* for July, 1865. These operations of earthing up and placing away in the trenches, are very simple, and can be done by any common laborer after a few minutes' practice, but are not very easily described. Any of your country readers interested in the matter, who happen to be in the City of New York, in October or November, had better come over and see our mode of working. My own grounds can be reached from the office of the *Agriculturist* in less than an hour; and our whole vicinity is a series of market gardens, a view of which at the different seasons of the year would be instructive to those inexperienced in the business. Celery is yearly becoming a more and more important crop, and in most country towns, if grown as we grow it, must be highly profitable. It pays us a fair profit at 2 cts. a root. In most cities (New York excepted) it averages 6 cts. per root.

GARDEN REFUSE.—Green stuff, such as cabbage leaves, radish and beet tops, and the like, should not be allowed to dry. Let them go while fresh to the pigpen or to the compost heap. Young weeds—and old ones ought not to be found in the garden—should have the same destination. By saving all the refuse of the garden in a heap by itself, or putting it in the pigpen, a surprising accumulation of valuable compost will be found at the end of the season.

Opium Culture.

Already more space has been devoted to Opium culture than we intended to give, but our account would be incomplete did we not give our correspondent "B's" manner of collecting the product. He makes a scarifier for the purpose, and has forwarded us one from which the engraving, figure 1, is made. It consists of a light wooden handle, curved so as to fit the hand conveniently; at one end are inserted four small knives or lancets. This portion

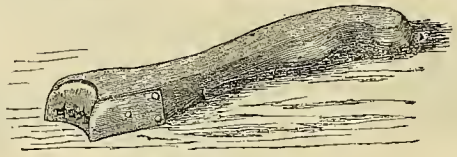


Fig. 1.—SCARIFIER.

is curved so as to correspond with the shape of the capsule, and it slopes from below upwards, as shown in the engraving. The end of the handle is covered with a thin metal plate, in which are slits through which the knives project. This plate is attached to the handle at the sides, but is free at the ends and acts as a sort of spring when the implement is pressed against the capsule. The manner of holding the scarifier is shown in figure 2. The capsule is held firm by the finger and thumb of the left

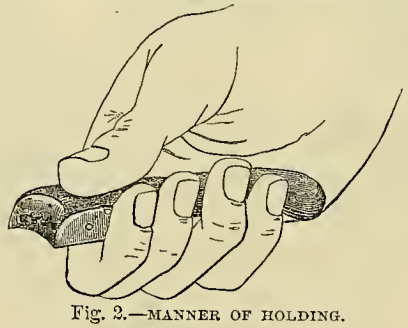


Fig. 2.—MANNER OF HOLDING.

hand, and the scarifier applied to the lower side of the capsule and brought upward with a delicate touch, following the curve. A little practice will enable one to scarify rapidly without cutting through the walls of the capsule. The operation is performed in the afternoon; the juice when it first exudes is quite liquid, and care should be taken not to shake it off by brushing against the plants. The product is scraped off in the morning as soon as the dew is off. For this purpose a knife is used, shaped as in figure 3. The edge is smooth but not sharp. The opium from a dozen or so of capsules is removed, and then the knife is cleaned

Fig. 3.—COLLECTING KNIFE.

by transferring the accumulation to a vessel carried for receiving it. The amount gathered each day is exposed to the air to dry, and when about half dry it is added to the mass. The scarifying is repeated from two to six times, according to the size of the capsule and the yield. In India the gatherers of opium sell their crude product to the factories, where that bought of various growers is mixed and worked over and made into cakes for commerce. The foreign opium is made into various sized balls, the exterior of which is covered with poppy petals, and sometimes with the leaves of the plant. Should opium become a product of importance with us, no doubt some plan for preparing it for market will be hit upon, which will be an improvement upon those followed abroad. Dr. B., to whom we are indebted for the details given in this and previous articles, is very confident that opium can be made a paying crop if proper pains be taken, and that it would afford easy and profitable labor to women and children.

Notes from the Pines.

Several have written to ask what has become of the "Notes from the Pines." I did not, when I began these notes, engage for a regular series, but chose to put in this form the odds and ends of personal experience that could be more readily given in this way than in a regular article. They will be continued, as the doctors prescribe medicine—*pro re nata*.

Nothing gives a more home-like aspect to a house than an abundance of climbing shrubs. These are generally put up in an awkward manner. Some fasten them directly to the woodwork by means of straps of leather. This discolors the paint and is not favorable to the growth of the vines. Another way is to build trellises against the veranda. There were here some great ladder-like things, strong enough for a man to climb up by; there was more trellis than vine. These structures were taken away and galvanized iron wire substituted. I found at Patterson Brothers' hardware store some green-house screw-eyes, which are ¼-inch rods of galvanized iron with an eye at one end and a gimlet-pointed screw at the other. These screw-eyes answer admirably for holding the wire, and a support may be put up by their use, which will be both inconspicuous and serviceable.

Last summer I had a word of commendation for the Perpetual Spinach Beet. Roots which had been frequently cut from, last summer, kept admirably through the winter with a slight covering of salt hay, and in April again gave a supply of greens. This year I propose to plant some in September, for the purpose of keeping through the winter. These are not to be cut from, and will be much more vigorous in spring than partially exhausted roots.

It is curious to notice how we are influenced by external appearances. The Irishman's motto, "Niver mind the book for the cover," is a favorite one with me, but I don't live up to it. Several dealers have sent me collections of flower seeds, and at sowing time I found I had three or four papers of the same thing from as many different establishments. I did not care to sow more than one paper of each, and I found myself each time selecting the packet that was in the best paper and the most neatly printed.

A wooden hay-rake is an odd thing to use in the garden, but it is a very efficient tool. When the land has been plowed and harrowed as carefully as may be, there will be ridges and uneven portions to level, and a wooden rake does it better than a steel one. It is lighter to use, and being so broad, it gets over the surface rapidly.

In England the winter decoration of gardens is an important part of the gardener's duties, and last winter, which was so unusually favorable for such things, set me to considering if a set of plants could not be selected which would allow us to do something pretty and effective in our less favorable climate. Almost every year the ground is bare of snow for weeks at a time, when it would be cheering to look out upon a well arranged bed, in which the various shades of green were

planted in pleasing contrast. When the first considerable snow melted away, I saw upon looking across a bed which had been used as a sort of reception room for odds and ends, a strip of green so fresh and so peculiar, that I at first did not recognize it. It stood where there had been a lot of ornamental grasses, all of which, but this, had long ago been cut down by the icy sickle (don't print that icicle) of Jack Frost. This grass, *Festuca glauca*, stood up bright and fresh, as if it, on the whole, rather preferred cold weather. The leaves are stiff and wiry, make dense tufts, and have a peculiar pale bluish-green,—a tint that would form a capital contrast to almost any other shade of green. The plants came from a florist last spring in little pots, and last winter I saw it grown in another florist's green-house. It is as hardy as an oak, and a real prize for winter beds. There are some Sedums too, well suited to this purpose, as are several low growing evergreens. The *Retinispora plumosa aurea*, which friend Hoopes says is perfectly hardy, would afford a fine golden color for the winter bed. If it ever gets cheap enough to be used freely, it can be used with fine effect in contrast with the low growing evergreens with dark foliage.

Inarching the Grape-vine.

An enthusiastic amateur gives in the Horticultural Annual for 1870, an article on inarching the grape. He finds that the Clinton and others of our native species, have much more vigorous and hardy roots than the exotic grapes; and he has in his extensive vinery a collection of the choicest foreign varieties inarched upon natives. This method may be practised on out-door vines, in cases where we wish to get a feeble grower upon a strong root, or where we wish to fruit a new variety as soon as possible. In inarching, the plant that is to serve as a cion must be planted in a pot or box

Fig. 1.—INARCHING.

so as to be movable. The operation is performed in the open air in the early part of July. The vines to be operated upon being brought into convenient position, a slice from 2 to 4 inches in length is cut from stock and cion, cutting through nearly half their diameter. The slice is thickest in the center, and tapers to each end. If the branches operated on are small, no tongues are made; but if a quarter of an inch or more in diameter, the cion may be tongued from below *upwards*, and the stock from above *downwards*, and the two put together as shown in figure 2. A tie is placed above and one below

Fig. 2.

the wound, which is then rather firmly bound with a strip of oil-silk, and over this is wrapped a strip of muslin. A few vine leaves are bound on to keep off the sun. The green shoots of the vine are very brittle at the nodes, or joints, and in operating, care should be taken to avoid breaking them at these points. In about a month the union will have so far perfected that the muslin may be removed, and the oil-silk be cut by running a knife along the stock lengthwise, to allow the vine to increase in size. The oil-cloth is not removed, but the muslin is loosely replaced. At the end of six weeks all ties and bandages may be removed. Three weeks or a month after operating, the growing ends upon the stock are pinched to direct the sap into the cion, and the growth of the stock kept checked by frequent pinching, but it is not cut away above the union until the wood has ripened. At the end of six weeks the cion is cut half through below the point of junction, and before the leaves commence falling it may be severed completely. Figure 1 shows the union between the two vines perfected, and before the cion has been cut away from its own root.

What Flowers will Grow in the Shade?

BY PETER HENDERSON.

The question "What flowers will grow in the shade?" is put to me every spring by scores of city people, whose little patch which they wish to devote to flowers is so walled up by neighboring houses, that the direct rays of the sun, never touch it. But few plants will develope their flowers there, and none will do it as well as if it were lighted up by sunshine a part of the day. Fuchsias, Pansies, Forget-me-nots, Violets, Lobelias, Lily of the Valley, Phloxes, and other herbaceous plants whose native habitat is shady wood, will do best, but even these languish if denied all direct sunlight. The best effect in such situations is produced by ornamental-leaved plants, the beauty of which, is not dependent upon their flowers. Among these may be ranked the Gold and Silver Variegated leaved Geraniums, Achyranthes, Alternantheras, Begonias, Caladiums, Centaureas, Coleuses, etc., which, if planted so as to bring the various shades in contrast, produce a pleasing effect, which continues during the entire summer months, and is not surpassed by any display of flowers.

The cultivator of flowers in rooms should understand the necessity of sunlight to plants that are to flower, and endeavor to get these as close as possible to a window having an eastern or southern aspect. The higher the temperature, the more plants suffer for want of light. Many plants might remain in a temperature of 40 degrees, in a cellar for example, away from direct light, for months without material injury, while if the cellar contained a furnace keeping a temperature of 70 degrees, they would all die; such would particularly be the case with plants of a half hardy nature, such as monthly Roses, Carnations, Fuchsias, etc.

In our green-house culture of flowers, direct sunlight is an all important consideration; and a spell of sunless weather in midwinter is often a loss to us of hundreds of dollars, by preventing the development of flowers. Hence, we use every means at command to dispose the plants to secure the greatest amount of light.

The debilitating effects of want of direct light on plants are well illustrated by taking a vigorous plant in full foliage and flower, that has been growing in the direct light of our green-house benches, and placing it under the bench. If the temperature is high—say 70 degrees, in 48 hours, the sickly signs, showing want of light, will be apparent to an experienced eye; in a week its condition would be such, as to indicate sickness to the most common observer; and in a month it would most likely be dead.

In this respect, there is some analogy between plant and animal life, and it teaches us the importance of light for our own healthy development. Certain it is that our green-house and garden operatives will compare favorably with any other class of workman, as far as health is concerned. In the past twenty years, I have had an average of thirty workmen daily. During that time, but one has died, and two only, have been seriously sick, and some three or four veterans who are growing grey in the service, have never lost an hour. I doubt if it would be easy to find the same number of workmen employed *out of the sunlight*, who could show such health as these sunbrowned boys of ours.

PRESIDENT WILDER AND CHARLES DOWNING STRAWBERRIES.—There are two varieties of strawberry called President Wilder, and Charles Downing. The European President Wilder, was raised by De Jonghe, and the American one originated with Col. Wilder himself. The European Charles Downing is a seedling by De Jonghe and the American variety of that name was obtained by J. S. Downer of Kentucky. It is very unfortunate that this doubling of names should occur. According to pomological rules, the name first published with a description in a pomological work, takes the priority. This is a matter that will properly come before the committee on synonyms of the Am. Pomological Society. Those purchasing varieties with the above name, should ascertain whether they wish the American or European, and order accordingly.

Fire Hot-beds.

BY PETER HENDERSON.

In the St. Louis Journal of Agriculture for February 24th, there is an article upon "Fire Hot-beds," by E. A. Rheil, and in the Prairie Farmer Annual for 1870, Dr. E. S. Hull, of Alton, Ill., in an article on "Propagating the Grape," treats on the same subject.

The plan, if I rightly understand the gentlemen, is, in substance, to run under the soil smoke or heated air flues from the furnace, at such distances apart as will heat the space of hot-bed wanted for planting or sowing upon, or to form the base on which to rear the superstructure of green-house or frame. Both writers fail to tell in what way the superstructure of glass is to be made; they do not give the hight, and we are left to conjecture, whether they recommend a *green-house* or a *hot-bed*. If they intend a green-house, then if walking room is to be obtained inside, the bed must be too far from the glass for the health of the plants; if simply a hot-bed is intended, where access is had only by lifting the sashes outside, then all who have had experience know that it cannot be worked to advantage in the winter months. As to the economy of heat claimed for this method, I can only say that the soil around the

gentlemen have got hold of a practice that has been tried and abandoned many times both here and in Europe. The failure is due to the obvious fact that the soil surrounding the hot-air flues abstracts the heat *below* and *laterally*, while it is only wanted *above*, hence the heat abstracted from the flue except by the soil laying over it, is, to a great extent, lost. So well are we aware of this fact that in heating our green-houses by hot water pipes or by smoke flues, we are always careful to elevate them at least six inches above the ground, to prevent the loss of heat by the absorption of the soil below. In the past dozen years, plan after plan for artificially heating pits and green-houses have been advocated, tried and abandoned by us, just as they had been advanced and abandoned by those who had preceded us; such will be the fate of those "fire hot-beds." Those of us who have had nearly a quarter of a century's experience among the hundreds of green-house establishments in the vicinity of New York, have tried or have seen tried, the running of flues underground, to our cost and sorrow; and have long ago come to the conclusion that if a hot-bed proper is to be used at all, it must be made of some such material as horse manure, leaves, tan-bark, or refuse hops. Hot-beds for commercial purposes are rapidly being abandoned, and the popular low ridge and furrow green-house, heated by smoke flues or hot water pipes, is in use wherever the expense can be spared. The convenience and satisfaction attending the working of these green-houses, compared with the hot-bed, are manifest. We can get inside and be at work in all weathers, so that our labor is just as valuable in a stormy day as in a fair one, and the plants are always right under the eye.

The Scarlet Crassula.

While we take a pleasure in welcoming all such new plants as the Bouvardia, described in another article, we have an equal satisfaction in calling attention to old and meritorious ones—excellent things which are thrust aside to make place for new comers, and with few to say a word in their favor. One of the first green-house plants that the writer learned the name of was the Scarlet Crassula (*Crassula coccinea*)—though the old gardener did call it with a very broad Scotch accent "*Cradjúly Cockscény.*" Though for a long time a popular plant, and even now a leading one with the London flower dealers, we cannot learn that it has ever received a popular name. It is now placed by botanists in the genus *Rochea*, and its former botanical name, Crassula, may as well be adopted as the common one. It belongs to the same family with the Stone Crops (*Sedums*) and House-leeks (*Sempervivums*), and like them has fleshy leaves and a great amount of vitality. Its leaves are arranged in four rows upon the stem, which bears upon its summit a cluster of scarlet flowers of about the size of those in the engraving. It is propagated from cuttings which are laid aside to dry for a few days before they are potted—a precaution necessary with succulent plants to prevent them from decaying. The plants, when growing, need an abundant supply of water; but the pot should be so drained that none will remain stagnant about the roots. After flowering, the water should be gradually

THE SCARLET CRASSULA.—(*Rochea coccinea.*)

withheld, and the plants should have a season of rest and dryness. The Crassula is well suited to house culture, as it endures a dry atmosphere; but it is easily injured by frost. Two others belonging to the same genus, *Rochea falcata* and *R. perfoliata* are interesting green-house plants.

The Maze at Central Park.

In the gardening of a century or two ago, the Maze or Labyrinth was considered an essential appendage to grounds laid out in the then prevailing style. The Maze is a tortuous, intricate path, bordered on each side by a hedge. If ingeniously arranged it affords an amusing puzzle to reach the center, where there is usually a shaded seat or a fine view to reward the successful visitor. In the present style of landscape gardening the Maze is considered as too artificial, and it is mainly a thing of the past. At the New York Central Park one has been constructed by the efficient gardener, Mr. I. A. Pilat, and here, where the object is to furnish as much variety and amusement as possible, it comes in appropriately enough. The hedges may be of Norway Spruce; in England the Yew is a favorite plant for the purpose. The hedges are kept about five feet high, or they may be so tall that they cannot be seen over. In the labyrinth at the Park there is a commodious rustic shelter, A, at the center; at B, are rustic seats, and at C, circular seats around shade trees. The Maze is situated east of the old Croton reservoir, not far from 79th Street.

MAZE AT CENTRAL PARK.

PRUNING EVERGREENS.—We are frequently in the receipt of letters asking how and when to prune evergreens; but each writer forgets the important point,—what he wishes to prune for, or whether he is growing a forest for spars, or a low hemlock hedge. Many evergreens, if they grow as single specimens, will take on a form which no art can improve. Specimen trees will need but little pruning; if the upper limbs are disposed to overhang the lower ones they should be shortened, to give those below them a fair share of light and air. This may be done while the young growth is yet tender, if a mere cutting back is all that is required. If limbs need to be taken out, it may be done late in autumn or early in spring. Hedges in their early growth are cut in autumn after the season's wood has ripened; but when the plants have become well established, and it is desired to check the growth, they are cut back in June while the young shoots are still immature. Pruning at this time has the same dwarfing effect that pinching has upon a deciduous tree. A very little trimming may afterwards be needed in early autumn to bring the hedge into the desired shape.

SEEDS OF PERENNIALS.—One great obstacle to the cultivation of herbaceous perennial plants, is the difficulty with which the seeds of many germinate. A large proportion of them require to be sown as soon as ripe; they come up soon and make strong plants, which will bloom next year; while if kept until the following spring, they would remain a full year before they came up. Several of the Columbines behave in this manner. We notice in the seed catalogue of Mr. Ortgies, of Zurich, Switzerland, that those seeds requiring to be sown in summer are indicated. This is very useful information, which our dealers would do well to give in their catalogues also.

THE HOUSEHOLD.

(☞ *For other Household Items, see "Basket" pages.*)

An Aquarium.

Having said something about the construction of an aquarium as a household ornament and a means of home instruction, a few hints as to its management are necessary. It was stated last month that most plants that grow partially or wholly submerged would do. Every pond or deep, quiet stream will furnish several. The one shown in figure 1 is the Mermaid-weed, (*Froserpinaca,*) which is frequently used, though it is not a true aquatic. It grows in shallow water, and its submerged leaves are divided, as shown in the engraving; but later in the season the upper portion grows above the surface, and the leaves then developed are so different in shape that they would not be recognized as belonging to the same plant. Another very common plant is the Water Starwort, (*Callitriche,*) figure 2. Its floating tuft of green leaves looks very pretty, but the portion below the surface is not so pleasing. One will soon find what plants flourish best and look best. When the aquarium has been in operation for some weeks, the glass will begin to look dim, and it will be found that a green film has covered it. This green film is a growth of microscopic plants, and while it in no wise interferes with the healthy condition of the tank, it is annoying, as it obstructs the view of what is going on within. Snails are useful in keeping this growth in check, and they also consume decaying vegetable matter. It is well to have a good supply of snails, as they require very little oxygen, and are excellent house-cleaners and scavengers. They crawl along the surface of the glass with their broad foot expanded, as shown in figure 3, and keeping in motion they usually destroy or prevent the troublesome green film. If the snails do not prove efficient, the glass may be occasionally cleaned by rubbing it with a swab. There are two or three species of snails to be found in streams and ponds. They will all answer in the tank; but if either is found to destroy particular plants, it should be rejected in favor of the others. Mussels, or fresh-water clams, are useful, as they strain out much impurity from the water. We have already cautioned against introducing too many fishes. Those that are kept, as well as other animals, will require feeding about twice a week. Small shreds of raw beef are generally used, and when gold-fish are kept, small pellets of bread may be given. Whatever food is used, all unconsumed fragments should be removed, otherwise they may produce trouble by their decay. A small net attached to a wire will be found convenient to remove objects from the tank; and a glass tube long enough to reach the bottom will be useful in removing unconsumed food, etc. Close one end of the tube tightly with the finger, immerse the other end of the tube and bring it directly over the object to be taken out; remove the finger from the upper end and the water will rush into the tube, carrying with it the piece of meat or bread; close the tube again with the finger and it may be lifted out with its contents. In a properly managed aquarium the water will remain for an indefinite time without the necessity for changing; but sometimes from neglect or accident it will become impure, and must be exchanged for a fresh supply.

Fig. 1.—MERMAID-WEED.

Fig. 2. WATER STARWORT.

Fig. 3.—SNAIL.

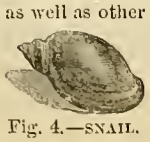


Fig. 4.—SNAIL.

The New Baby and Its Mother.

BY FAITH ROCHESTER.

There is not much to *do* for such a wee thing. Just *let it live*, and not torment it with unnecessary fussing. It is to be supposed that some motherly woman has washed and dressed the babe, and now for a week I would not repeat the process. Let it lie and sleep as much as it likes, quiet and warm. Its head should be lightly covered at first, but gradually accustom it to sleep with its head uncovered. It is not fair to keep it inside its mother's bed in such a way that it must breathe impure air. Let the air of the room be as fresh as possible without being uncomfortably cool; and keep the room quiet and pleasant.

Away with all doses! In all ordinary cases, Nature is equal to the emergency, and all we have to do is to give her a fair chance. Pumpkin-seed tea, molasses and water—nonsense! The maternal secretion has just the purgative properties required, what little there is of it, and usually baby needs nothing more. To be sure, it cannot be called milk—that does not come until about the third day, and this is a period of some danger to the mother. About this time danger from "broken" or "healed breast" begins. As "an ounce of prevention" of this terrible condition, let the mother be very temperate in her eating, and especially in drinking, from the child's birth until the flow of milk is fairly established. Simple gruel, plain pudding, bread and vegetables, and (not very sour) fruit are best. Meat, milk, eggs, and warm drinks, had better be let alone, for a week, at least. If the baby can depend upon its mother at all for food, there is no danger of there being too little at first; there is more danger of too much, and if this is not all drawn away, the least cold taken may produce most agonizing results. Do not mistake the swollen glands for milk, insisting upon drawing away what is not there. Be very gentle. Hard rubbing is not good. Leave the matter to baby as much as possible. If the danger seems very great, applications of camphor have a tendency to keep back the flow of milk. I don't like the idea of exposing the tender olfactories of a new-born babe to such powerful smells, and I would be very careful to wipe the tincture away with a cloth wet in warm water before nursing. If you have a good nurse it would be better, perhaps, to sweat the inflamed parts with warm water; but the danger of taking cold is so great that it is not safe to try to treat one's self. I know camphor to be an excellent thing for reducing the swelling, and I suppose it is the most common "old woman's remedy."

You thought it another old woman's notion when I advised you not to undress baby for a week—eh? No. I was astonished when my doctor gave me that advice about my first baby. I would have had it stripped and bathed daily, from the first; but common sense and *sympathy* have made me feel that there is no necessity for so much handling, and that it is really an interference with Nature's healing operations. If this healing is slow, it may be best to put off the dressing for a day or two longer. In this matter, something depends upon the band. It is cruel and unnecessary to draw it tight, but a loose band will not stay in place unless properly made—with two small gores to make it fit under the bowels. Some "new-lighty" people disbelieve in bands altogether, because calves and kittens do not wear them! But nature does more for the little brutes than she does for the babies of modern mothers. If our babies, like little kittens, needed no clothing at all, it might be safe to leave them without bands or plasters. I know one woman who used a plaster instead of a band, with success, but it seems to me more objectionable than a well-made band. Calves run no risks from hard crying or improper handling. Let me give patterns of the band and wrapper described in the *Agriculturist* for Nov. of last year. I wish now to recommend them more strongly than ever. Both garments should be made of soft flannel. Straps on the band are hardly necessary for a child less than a month old, and in ordinary cases the band may be left off at that age. If the child cries a good deal, or catches whooping cough, it is probably best to make new bands, and keep them on, fastened rather loosely, and kept in place by the straps. The flannel wrapper takes the place of the usual linen shirt and waisted petticoat, affording a more easy and comfortable covering for the whole body. The outer wrapper, or dress, may button all the way down the front, but the flannel wrapper will be warmer to open only half-way down. All the buttons used should be flat and thin. I fancy that much of the complaining made by very young babes is about their clothing, because it is too tight or too stiff, too warm or too cold, or too unequally distributed. Babies are the sweetest and cunningest playthings in the world, but oh! they are so much more than that! Their healthy development is of the first importance.

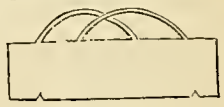


Fig. 1.—BAND.

With regard to bathing, consult cleanliness. Usually babies seem to need a daily bath, after the first few weeks, until they are several months old; and nearly all little children who enjoy a child's natural right of playing in the dirt, need daily ablutions in summer. More than one of my acquaintances have confessed to me that they believe their children have been injured by too much bathing, carried beyond the requirements of cleanliness, with an idea of invigorating the system. Those who advocate dipping young babes into tubs of cool water for the purpose of toughening their constitutions, should be good-naturedly told that "calves and kittens are not treated so!" Warm water opens the pores of the skin so as to increase the liability of taking cold; but the water used at first had better be slightly warm, and should never be so cool as to shock the little one. Gradually lower its temperature, as weeks pass, until it feels comfortably cool to your elbow. Your hand is no certain guide. Water that feels warm to the hand may be decidedly cool to the elbow.

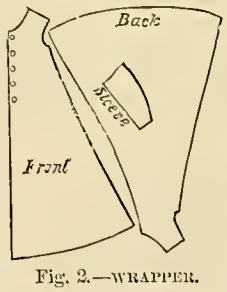


Fig. 2.—WRAPPER.

If the babe cannot have its most natural food, the best substitute is the milk of a new milch cow, weakened with warm water (soft, if possible), three parts water to one of milk, at first. Gradually increase the proportion of milk. It may be sweetened with a very little white sugar. Perhaps the next best thing is Graham gruel; make a thin, smooth paste with sifted Graham meal and cold water, and stir it into boiling water; let it boil two or three minutes, stirring it well. Add a little milk or fresh cream, if you have either. No seasoning is *necessary*, so do not put in sugar. My little ones were very fond of this; I began feeding it to them when the time of weaning drew near. Before this I did not *feed* them anything, or not before the teeth began to appear. When a tiny tooth has worked its way through, I think it is quite the fair thing to give it a crust to gnaw; but the practice of giving all kinds of food from the table seems to me very unreasonable. Good "bread and milk" is one of the best staples of a weaned baby's diet. Fresh apples, scraped with a spoon, are wholesome and very welcome to most babies.

This is the best sauce to go with the gruel (which, for children several months old, I make rather thick—so that it will hardly *pour* from the dish like a fluid), a small spoonful of gruel and then a little taste of scraped apple, or other fresh subacid fruit. Be slow and patient in feeding. The time of weaning is a matter that requires judgment—usually at the age of from nine to fourteen months. It is seldom as well for mother or child to continue nursing longer, but it may be better than to wean the baby just as the hot season is coming on. A teething baby is peculiarly liable to bowel diseases, and these are often induced or aggravated by milk that is passing or just past the point of perfect sweetness. In deciding the time for weaning a child, take into account the probabilities in the way of obtaining regular supplies of suitable food for it, and the condition of the mother's health. No double drain upon her maternal resources, physically, should be allowed. It is a common mistake to suppose that a woman must eat more than usual during the nursing period. Nature has made other provision for the emergency, and any gormandizing on the part of the mother, deranges her own stomach, vitiates her blood and the infant's supplies drawn from it, and so harms both mother and child. The mother's food should be plain and wholesome. It seems to me a sad pity that most mothers are so much addicted to the use of stimulating drinks, as tea and coffee. If the supply of food for baby is small, any other warm drink would increase its flow just as well as tea—malt or barley coffee, even better. Warm water alone, as warm as you take tea (not lukewarm—that sickens), answers every purpose. But usually no warm drink is necessary.

At first the new baby will need to take food more frequently than it will a few months later; though it will sometimes sleep five or six hours at a time, even during the day. It grows best while asleep; but *never* give soothing syrup nor any narcotics; and do not force sleep upon it when it seems to prefer wakefulness. If the room is reasonably quiet, Nature can manage the business. Comparatively few mothers consult the clock at all in reference to nursing their babes, but offer food the first thing when baby cries. This is unwise, as hunger may be the least of baby's troubles. Those who do give a rule, usually tell us to let the intervals between nursing be from two to three, or even four hours. I now feel pretty sure that there are very few babies that can go *more* than two hours, at first, between their meals—unless they sleep past the time. Some cannot go so long. It is simply outrageous to make the little things suffer from hunger, when Nature calls so imperatively for building material for their growing bones and muscles. I think more babies than one have been wronged in this way by conscientious mothers who have been taught that the intervals between nursing should never be less than three or four hours. Watch the little one; study its natural language. See how it opens its little mouth, like a young robin, and turns it this way and that, with a sweet, blind faith that the necessary nutriment will be supplied. This hint should be sufficient. Why *oblige* your little guest to scream for what it needs? Generally the baby's instinct is your best guide. Wait for its pretty hint that it is hungry and then *heed it*. If you neglect this, it can do nothing better than cry; and if you feed it whenever it makes any sign of discomfort, it will soon forget its natural language. Tennyson was not *quite* right when he wrote "And with no language but a cry," referring to "an infant crying in the night." Every true mother who has a fair chance with her baby, discovers and soon learns to interpret various little signs on its part. Most persons pay no attention to anything short of downright crying, and then are too stupid or careless to study the meaning of the cry, but offer it the breast at once to hush its crying, when, perhaps, the child is suffering from too much food already. If babies have wind colic, it is because of imperfect digestion. The food may be of poor quality, or may be given in too large quantities, or too frequently. Do what you can in the way of prevention, and for cure—turn the baby upon its stomach with your warm hand or a warm flannel under its bowels, and gently pat it on its back. See that its feet are warm. If this does not relieve it, feed it warm water with a spoon. This is the best remedy for colic, or for pain in the stomach. It is the *warmth* of the catnip tea that gives relief, so leave out the herbs altogether. If the babe is suffering from colic, it will draw up its legs and incline to double itself together.

Try to give the baby good habits of sleep. At first it will probably fall asleep without any coaxing, while lying on the bed beside its mother. Keep this up if you can. When you are tending it in your arms and it shuts its eyes or seems sleepy, lay it gently down, and do not even pat it, or with not more than one or two little pats. When night comes, have a quiet, well-ventilated room. If you keep a lamp burning, set it in the next room or where its rays will not fall directly upon the bed. If this is not your first child, you will probably put out the light. Do not have a kerosene lamp turned low, as the exhalations are not only disagreeable but poisonous. Now make up your mind to let the baby alone as much as possible during the night. If it nestles and seems to be waking, turn it over gently and it will probably take another nap. But don't think your baby can do everything your neighbor's baby can.

Not long ago I told you "A baby should be taught, on the start, to take food but once during the night, and may be weaned from night nursing altogether when quite young." This has caused me some "twinges" since, and I see no way of relief but to confess that I failed myself in the attempt to wean baby from night nursing before I weaned her entirely. I was sincere when I said it could be done. I had been told that babies three months old might be so taught, and my own little nestling used sometimes to sleep from evening twilight until morning twilight, without a meal or a request for one, when only three months old. But that was in the month of August. As the nights grew longer, it went to bed earlier and began to call for refreshment before daylight. Still, I had hopes until it was more than six months old, that I should succeed in teaching it to sleep all night without food. I would not *force* such a matter, for I believe that babies know more about these things than Doctors do. It now seems to me that a whole night of average duration is too long for a *nursling* to go without taking nourishment. The chief cause of failure with early spring chickens is said to be the long nights without food. Those who take a lantern and feed the early born, little chickens at midnight, succeed in raising them. Before insisting on bringing our little ones to any very strict rules for bathing, sleep or diet, let us consider the case of the Yankee farmer who was so eminently successful in teaching his horse to live on nothing but bean straw. Strangely enough, just as he was rejoicing over his complete success, the horse died!

There can be no square, definite rule for bringing up children, for no two require exactly the same treatment. Parents should try to become thoroughly acquainted with each one. The mother may begin the study of the new-comer at once, as she lies with that mysterious little bud of humanity so near her. For a good month, at least, she ought to rest from household labor and household cares. Say what you please about Indian women and about our grandmothers; our condition is different, and we must conform ourselves to it. I have known of so many cases of weak backs and horrible female weaknesses that dated from some overtaxing of the strength during the first month after confinement, that I think women can hardly be too careful at such a time. They should not be ambitious to get well *soon*, but to get well *thoroughly*. For three months after confinement a mother should not attempt any very hard work, though she may go about her business, moderately, after the first month. Her *first* business is the care of baby.

Dear young mother! Thank God and take courage! Motherhood has its pain and sorrow, but it has also the sweetest and purest pleasures.

How to Cook Green Peas.

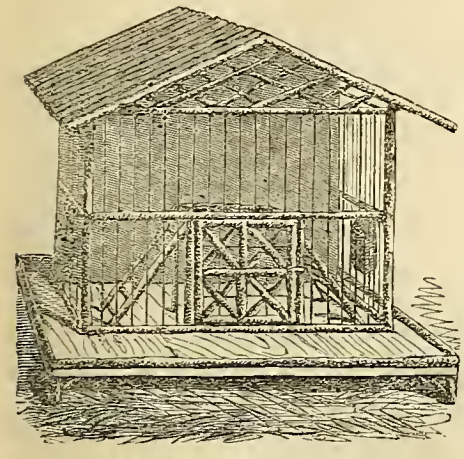
Pick the peas in the afternoon, let them stand until time to prepare next day's dinner, or, if not convenient to shell them, until the day after. Put the shelled peas into a large kettle of water with a piece of pork, and let them cook until they are boiled out of their skins.—That is how not to treat peas, and yet it is the style in which many treat one of the most delicate of vegetables. Every hour that passes between the picking and the cooking of peas is attended with a deterioration in their quality. Those who buy peas must submit to having them stale, but those who raise them have only themselves to blame if they do not enjoy them at their best. Peas should be boiled in just water enough to cover them. It should be salted and boiling when the peas are put in. Allow them to boil uncovered. The time required varies with the age of the peas, from 15 to 25 minutes. Peas that require longer boiling, or need the aid of a lump of soda to make them tender, are not to be considered as *green* peas. When the peas are done, skim them from the water or drain on a colander, and place them in a vegetable dish with a good lump of butter. The English frequently cook mint with their peas, and the French stew them with onions, butter, and parsley. These additions disguise the delicate flavor. Peas need only salt and butter; sweet cream is an acceptable substitute for butter.

Strawberry Short-cake.—We believe that the Strawberry Short-cake is an American institution. It is in its season the popular dish at the restaurants, most of them announcing it by placards, and some of them advertising the "Original Strawberry Short-cake." We have always looked upon it as an ingenious device for spoiling strawberries; but as we are probably in the minority, we consult the wishes of the majority by giving the following recipe, which comes well recommended: "To 2 teacupfuls of sour milk add 1 teaspoonful of soda; when this is dissolved, add 1 cup of butter or lard, and flour enough to make a soft dough. Roll into thin cakes large enough to fill the pan in which they are to be baked. Dust a frying-pan with flour, place in the cake and bake over the fire, turning as soon as the underside is done. Split the cakes while hot, and butter well. Lay on a plate a half of the cake, put on it a layer of well-sugared strawberries, put another half of a cake, more strawberries, and so on until there are five or six layers, and serve."....Another says: "Mix the dough with buttermilk as for short-biscuit, roll so that it will be from 1 to 2 inches thick when baked, and bake in an oven. Mash the strawberries slightly and add sugar to your taste, and water, to make juice sufficient to moisten well the cake; split the cake while hot, butter each part well, and pour the strawberries, etc., upon the under half and cover with the upper."

Lyonnaise Potatoes.—Prof. Blot gives the following: "If you have not any cold potatoes, steam or boil some, let them cool, and peel and slice them. For about a quart of potatoes, put 2 ounces of butter in a frying-pan on the fire, and when melted put as much onion as you please, either sliced or chopped, into the pan, and fry it until about half done, when add the potatoes and again 2 ounces of butter; salt, pepper, and stir and toss gently until the potatoes are all fried of a fine, light-brown color."

Canned Rhubarb.—Rhubarb in tarts and pies, or eaten as a preserve, is highly esteemed in the spring. It fills, acceptably, the gap which occurs after apples are gone, and before fresh fruits come. Rhubarb can be enjoyed in winter by putting it up in cans, the same as peaches and other fruits are preserved. As soon as strawberries and other fruits make their appearance, there are few calls made upon the rhubarb patch, and much is allowed to go to waste which might be preserved for winter use. The stalks are prepared as for making pies, —stewed tender, sufficiently sweetened, and put in jars or bottles while hot, observing the same precautions as are necessary in canning fruit.

BOYS & GIRLS' COLUMNS.



A Rustic Bird-Cage.

Building bird-cages is one of the amusements of boys who like to use carpenters' tools, and we give them a pattern of a very pretty one, which we saw some time ago. It was a cage for a parrot, but the same style may be followed in making one for smaller birds. The sticks are all cedar and left "rustic." Other wood with the bark on may be used. The roof is covered with sticks, split in halves and tacked on. The platform with the ladders seen inside will not be needed for small birds. In making a thing of this kind, start with a definite plan. Draw out the parts on a piece of coarse paper in the proper proportion, and then work to measure. Where the pieces of wood cross one another, as in the door, they are "halved together," as the carpenters say, that is, a piece is cut out of each stick half way through, and one stick is let into the other. But few tools are required—a fine saw, a good knife, and a gimlet for boring. Try and make straight lines and square corners, and endeavor to learn something even in building a bird-house.

The Zebu or Brahmin Bull.

Some cousins came on a visit, and I did as everybody in New York does with their country friends, took them to Central Park. City people go there to see the trees, the rocks, and the grass; but you boys and girls who live in the country see so much of all these things every day, that you like to go to a city, just for a change. Then you will wonder why I took my country friends to the Park if they were to see only such things as they left at home. I didn't say that trees, rocks, water, and grass were all that there was at the Park. No, indeed; there are such roads and bridges as you never saw before; and there are statues and fountains; but above all, there are the animals! There is a whole menagerie, from elephants to sheep. "Sheep are no curiosity, you can see a plenty without going to the Park."....So thought my cousins, but when they saw the flock of pure Southdowns, and the Cotswolds, I noticed they wanted to take a long look at them. As we came to the pens where the gentler animals are kept, we heard one visitor ask another, "An

THE ZEBU OR BRAHMIN CATTLE.

what is that wid the hump to his back?"—"Oh, that's a dhrummydhary, shure,"—said another. I looked for the dromedary, but saw only a couple of the oddest little cattle—a Zebu, or Brahmin Bull and a cow. These are much smaller than common cattle. The best way to describe these animals is to give a drawing of them. You will notice their hanging ears, their great dew-laps, and the curious hump on the shoulders. This hump is fatty, and is said to be delicious eating. They have a different voice from common cattle, and make a sort of grunting sound. These animals are natives of India—cousin Philip, who is always trying to be funny, said he thought they had a very *Indi-gured* look. Indeed, they have a strange expression, and look as if they would like to be taken back to India where they are regarded as sacred animals, and stand in no fear of the butcher; though the Brahmins do not hold them so sacred as to allow them to live in idleness, but they make them work, and it is said that when harnessed to a carriage they will travel thirty miles a day. My cousins were more pleased with the elephants; but these cattle were to me the most interesting things at the Park. I had read about their pictures having been found in Egypt, and that they had been kept as domestic animals over 2,000 years B. C. I had long wanted to see one of these sacred Bulls, and it was very satisfactory to come upon it unexpectedly.

WILL WARREN.

Chinese Kite Flying.

BY "CARLETON."

If there is an American boy or girl that does not love to play, I do not care particularly about making their acquaintance, but the *American Agriculturist* has no such dull, mopish, stupid readers. I dare say that there isn't one of the young folks who watch for its coming every month that does not love to play almost as well as they love to work! Work and play go well together. Only it is better to do the working before we do the playing. But the young folks in America are not the only people in the world who love to play. A few months ago, when I was in China, I found the old folks were as boyish as any of us. We should think it rather small business for our fathers and grandfathers to spend a whole day in flying kites, though Dr. Franklin, you know, did it. The people of Philadelphia, who saw that grown up man wearing a three-cornered cocked hat, going out to fly a kite in a thunder storm, thought he was crazy, but we know what has come of his craziness—lightning-rods, telegraphs, and a great deal of the science of electricity.

In September—the Chinese set aside one day to kite flying, and all hands engage in it. They say that a fortune teller once told a man that on such a day all of his cattle would die, and the farmer not wishing to see them struck dead, went out upon the hills and flew his kite either to drown his sorrow or to propitiate the kind feelings of the good spirit in the heavens who had the care of his cattle. Although he kept his kite up all day, his cattle died; at least so runs the story. And now whenever the day comes round, the people go out in great multitudes to fly their kites, to obtain the good-will of the spirits who have the cattle under their protection. This festival is called the "Ascending-on-High-Day," because then they send their kites up to the clouds. They beat us all out in making kites. The best one I ever had in my boyhood was small and mean in comparison with theirs. The frames of mine were covered with newspapers, while theirs are covered with red, green, yellow, or purple silk. Mine was simply a square frame, and not more than three feet high, while theirs are in the shape of spectacles, eagles, bats, owls, dragons, crocodiles, winged serpents, or fishes. They use small bamboo sticks, which are hollow, for the frame, which, therefore, is very light. Some of the serpents are fifty feet long, with wings stretching forty feet from tip to tip! I think that I hear you say—"*O, what a big one!*" Some resemble men sailing through the air. All are gaily painted and beautifully decorated. Everybody goes out to see the sight, and the hills are covered with spectators.

Imagine yourself near a town on the kite-flying day. You will see the town in the distance with a tall pagoda rising above it. The people are coming out to enjoy themselves for the day. You will be amused with the odd forms of the kite. One Chinaman has a kite shaped like an eagle. Near him will be another who is sending up a kite that looks like a vampire, which is a queer creature, having a body like a mouse—the head of an owl—and wings like an umbrella covered with India rubber—a creature, it is said, that sucks the blood out of your toes while you are asleep. I don't believe it though. When the sport of kite flying for the day is over, the Chinamen go to their homes and have a grand dinner, just as we do on Thanksgiving day or at Christmas.

The Chinese are quite as boyish in their other amusements. I know that we should all laugh until our sides ached were we to see a procession of grown up men walking through the streets on stilts! Yet that is what you may see in China. The stilts are five or six feet high, and those who walk on them are so expert that they have no fear of tumbling down. They dance and sing, straddle over men's heads, step across ditches, and take great strides as if they were long legged giants, tall enough to look into the second story windows of a house. It would be an easy matter, however, to trip them up and give them a tumble.

The boys of China have no wide-awake, jolly games. They don't know what real fun is. The old men have all the fun, which does not seem to be hardly fair. Though the fun of the old folks does not amount to much.

They have one amusement which I am sure you would like to see. They have many superstitions and believe that dragons have a great deal to do with human affairs. They must keep on the right side of the dragons, and so they have festivals in their honor. On the evening of the day on which the festival is held, the dragon makes its appearance in the streets. It has a great head. Its mouth is wide open; its eyeballs flame with fire; its body is as long and as large as that of the sea serpent, with claws like a crocodile's.

Think of walking along the street in the night and seeing such a monster coming towards you, wriggling its body over the pavement, twisting,—turning,—creeping,—crawling,—working its jaws as if to eat you up! If we did not know what it was, we should scamper into the house, bolt the door, run up stairs, or down cellar, or get behind somebody; but it is a dragon that does not eat folks. We could despatch him with an ax in a short time, or we could make an end of him by touching a candle to his tail. His ribs are not very strong—they are made of bamboo, and his skin is of paper.

It is not very difficult to get up a dragon. The Chinese take some small bamboo sticks which they make into hoops—some large and some small, the largest for the body—the smallest for the tail. Those are for the ribs

(*Continued on next page.*)

New Puzzles to be Answered.

No. 381. *Grove Puzzle.*—Plant 19 trees in a grove, the trees to stand in 9 rows, having 5 trees in each row.

No. 382. *Weight Puzzle.*—The following is sent by M. Butler. A grocer having no weights, except a 40 lb. leaden one, wishes to have this cut into four weights in such a manner that he can weigh with these four weights any number of pounds from one up to forty. What should be the weight of the different pieces?

No. 383. *Arithmetical Puzzle.*—Three men agreed to sell their eggs at the same price. The 1st had 50, the 2d 30, and the 3d 10 eggs. They each sold at the same prices, and each received the same amount of money. How did they sell and how much did they receive?

No. 384. *Illustrated Rebus.*—A maxim, which, if followed by both old and young, would save much trouble.

No. 385. *Illustrated Rebus.*—This is a very true saying, which the artist has ingeniously expressed in a rebus.

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"WINNING HIS PLUMES."—DRAWN BY WM. M. CARY.—*Engraved for the American Agriculturist.*

of the old fellow. They are attached to each other by strings—just as a hoop-skirt is made.

Paper is pasted over them, and painted on the outside to represent the skin and scales of the reptile. The claws are made so that a man can walk in each one. A string runs from the jaw to one of the claws, so that one of the carriers can open or shut the monster's mouth. Lanterns are hung inside of the body, so that, as we see it in the night, it resembles a huge fiery monster, creeping through the streets. Sometimes it is a monster without claws, and not carried by men, but is drawn by a cord. The man who draws it runs with all his might as if to get away from the terrible serpent that seems just ready to swallow him. The people rush to the door to see it, and shout to the fellow to run for his life, or the snake will catch him. It is all very interesting to see, but I doubt if there is as much real enjoyment in it as there is in a good game of base ball, or a grand hurry-scurry in a game of blindman's buff—where you go over chairs, under the table, on top of the bureau, with the blindman hard after you. Ah! that is fun in earnest! and although I am not so young as I was once, there is nothing that I relish better than a romp with the boys and girls. It is better than hair dye to keep one's hair from turning gray—better than any wash for keeping the cheeks smooth and fair, and quite as good as some sermons I have heard for keeping one light-hearted.

Winning his Plumes.

A civilized young gentleman considers the time when he first adopts the coat and hat of manhood, an important one. As far as outside appearance goes, it shows that he, at least, thinks he is no longer a boy, and he expects to be treated as a young gentleman. The young Indian is not particularly troubled about hat and pantaloons, yet he has his peculiar way of showing his claim to be considered a young warrior—which, among the Indians, is the same as young gentleman. So, instead of going to the tailor or hatter for the emblems to show that he has left the state of boyhood, he puts on eagle's feathers. You think that it would be an easy enough matter for the young Indian to shoot an eagle and secure the feathers. So it would be, but that is not the way it is done. Feathers obtained in this way will not pass muster. Custom requires that the young savage shall, if he would claim a place among the "big Injuns," pluck his feathers from a living bird—in fact, win his plumes in a personal struggle with their rightful owner—the eagle. The Indian is allowed no advantage over the bird, but each must fight with the weapons nature gave them. As the eagle has great strength, sharp claws, and a formidable bill, it will be seen that the young Indian has no slight task before him. The first point is to get at the eagle; to do this, the savage finds a hollow place in the ground, or makes one, large enough to hold him. The top of the hole is covered with sticks, so that he is completely hidden. A rabbit is fastened upon the sticks which serves as a bait; when the eagle sees the rabbit, and comes swooping down after its prey, it is caught by the legs by the concealed Indian. Then comes the struggle, which the artist has shown in the above picture. It is not easy to see how, with one hand required to hold the claws, and the other to defend himself from the beak, the young warrior is to get the much coveted plumes. We may think that feathers from a dead eagle would answer just as well; but the Indians look upon it differently, and hold that the youngster who wishes to be considered a warrior, must first show his strength and courage. If a set-to with a full grown eagle will not test these, we do not know what will.

Answers to Problems and Puzzles.

No. 379. You are not to judge a man by the coat he wears.

No. 380. Liars are not to be believed out of respect to their asseverations. Lyre s R knot 2 B B-leaved-out of RE specked 2 the-eye-R AS-eve-rations.

The following have sent in correct answers: E. J. Blake, Lizzie Yordy, C. H. Hartman, A. R. Tatnall, B. Railey, Mary A. Milligan, G. W. Milligan, "E. H. F.," F. J. Myers, E. S. Wood, Jennie C. Peebles, W. C. Alston, Clara A. Peebles, John Sandles, G. Womersly, J. D. Tackenthall, D. W. Taylor, M. H. Ish, E. D. Bunyan, A. Wimbish, R. Day Jr., Mary L. Root, Alfred Hood, D. C. Wright, Mrs. C. Blanford, Grace A. Flagg, W. O. Parkwell, E. A. Jones, C. M. Chase, J. Gaunt, Annie M. Roberts, W. Terrill Jr., Theo. C. Johnson, Katie E. Gager, J. Gist, M. Ealy, G. M. Hemingway, J. P. Hammond, Isaac Hull, L. A. McCartney, J. F. Brittain, Chas. Tallmadge, W. H. Garland, "Z. R. B.," W. H. Sunderland, W. A. Robinson, E. W. Park, B. H. Truman, Geo. Shearer, J. P. Treece, W. S. Bell, E. V. Conklin, A. J. Weaver, G. Tugnot, E. Purcell, D. T. Robbins, A. L. Hemingway, E. S. Vacher, D. H. B. & E. S. Hany, Olive E. Brusie, L. Daniel, J. W. Gruht, S. Powell, N. Helmath, F. Vreeland, J. H. Heisay, "R. H. S.," "D. W.," Belle H. Lewis, J. H. Little, H. P. Lewis.

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UNPARALLELED SUCCESS

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AMERICAN FRUIT-PRESERVING POWDER.

(Title Copyrighted, and Preserving Powder Patented in United States, March, 1861, and August, 1867. Also, Patented in England, France, Belgium, South America, &c., &c.)

From Prof. DARBY, Editor of the American Grocer, May 2d, 1870.

American Fruit-Preserving Powder.—It gives us pleasure when we can heartily and confidently commend any article we advertise. We certainly shall not commend any that we do not know to be good or are doubtful in regard to them.

Mr. Spear's preparations, advertised in this issue of THE AMERICAN GROCER, we are perfectly well acquainted with, and we know the materials which compose them, and that they are the best antiseptics for the preservation of food known. We have kept peaches from July to July again, in Alabama, exposed to the open air, with but a slight cover over the jar. At the end of the year the fruit was as fresh in appearance and taste as that recently taken from the tree.

The trade would do well to take an interest in the introduction of such an article as this. Besides the profit to themselves, they would find the preparation frequently of great service in protecting and preserving their own stock. Its use more largely among the people would also enable them to prepare for the market many articles now thrown away and which grocers could handle with profit.

From the New Jersey State Agricultural Society.

Waverley, September 21-25, 1869.

Messrs. Richardson & Gorgas, of Newark, exhibited fine specimens of fruit preserved by the process of Messrs. WORRALL & CO. This is comparatively a new method and the great care necessary in canning fruits to secure them against loss has caused all new processes to be looked upon with suspicion. The committee, however, would say in justice to the inventor, that all their doubts have been removed, and the trial of a year has proved that the method used by Messrs. WORRALL & Co. stands superior to all others. No sealing or soldering is required; ordinary jars, cans or other vessels with loose covers can be used, and fruits added as frequently as may be desired, by a few minutes' attention. A proper appreciation of this process would save large quantities of valuable fruits that are now permitted to be wasted or used for the most ordinary purposes. The committee most heartily recommend a first premium for this simple yet perfect invention.

From A. J. MAXWELL, Columbus, Lowndes Co., Miss.

Gents:—I take pleasure in saying that to the limited extent I used the American Fruit-Preserving Powder, I have succeeded admirably; the fruit having the freshness and flavor of the fruit from the tree.
January 24, 1870. A. J. MAXWELL.

From WM. B. MCCLELLAN, Talladega, Talladega Co., Ala.

Gents:—I have tried your American Preserving Powder the past season, and believe it to be everything you represent it to be. Very respectfully,
December 26, 1869. WM. B. MCCLELLAN.

From B. W. HUMPHREYS, Seguin, Guadalupe Co., Texas.

Gents:—The dozen American Preserving Powder was received in September, just after the crop of fruit was gone. By cleaning the trees, we got a gallon or two of inferior peaches, and put them up in a stone jar as directed. We have recently used them, and found them at least equal to our canned fruit, many thought them better.
January 7, 1870. Your friend, B. W. HUMPHREYS.

From I. Y. ROBBINS, Lambertville, Hunterdon Co., N. J.

Gents:—I sold a quantity of the American Preserving Powder last season and also used it in my family, and can highly recommend it as being excellent for preserving fruits for any length of time without destroying the flavor of the fruit, and is decidedly cheap.
January 10, 1870. Respectfully, I. Y. ROBBINS.

From A. J. HICKERSON, Taylorsville, Plumas Co., California.

Gents:—I, with several of my neighbors, have tried your American Preserving Powder the past season, and find it equal to what you recommend as far as we have tried it.
January 31, 1870. Respectfully, A. J. HICKERSON.

From Mrs. ISABELLA M. JOHNSON, Fairview, Burlington Co., N. J.

Gents:—I have tried the American Preserving Powder, and am free to say that it is the best method I ever tried. I take pleasure in recommending it.
ISABELLA M. JOHNSON.

From Mrs. L. C. REESE, Philipsburg, N. J.

Gents:—I used your American Preserving Powder with good success in peaches and tomatoes. Mrs. L. C. REESE.

From GREEK & HYDE, Florence, Lauderdale Co., Ala.

Gents:—Having full confidence in the American Preserving Powder, we purchased two dozen packages last season. Mrs. Hyde used the Powder according to directions in putting up all her fruit; apples, pears, plums, and small fruits, also tomatoes and green corn, all of which have given the best satisfaction. Believing the Powder justly entitled to all the merits you claim for it, we shall continue to use it, and cheerfully recommend it as an article of convenience and economy.
December 22, 1869. Respectfully, GREEK & HYDE.

From Mrs. J. C. BACON, St. Johnsbury Centre, Caledonia Co., Vt.

Gents:—I had good success with the American Preserving Powder in raspberries and currants; but my blackberries moulded some. Perhaps I did not use enough of the Powder. I think it a very good article, and shall wish to try it again.
January 8, 1870. Respectfully, Mrs. J. C. BACON.

From BURKE F. STARK, Manchester, Hillsborough Co., N. H.

Gents:—I haved used your American Preserving Powder the past season in blackberry and currant jam, and in canned peaches and tomatoes, with very good results. I shall use more of it another season, and hope to dispense with air-tight jars.
January 10, 1870. Yours truly, BURKE F. STARK.

From WM. WHEELER, Portland, Maine.

Gents:—We are very much pleased with the American Preserving Powder, and would recommend it, fully believing that it will do all that is claimed for it. We shall want more of it the coming season. Yours truly,
December 29, 1869. WM. WHEELER.

From D. H. THOMSON, Layville, Worcester Co., Mass.

Gents:—I received six packages of the American Fruit-Preserving Powder last season, and distributed four packages of them among my neighbors, and it gave entire satisfaction to all. The other two packages I used myself in putting up the different kinds of fruit used in my family, and, so far as we have tried them, we are very much pleased with the result. Yours, etc.,
December 22, 1869. D. H. THOMSON.

From Mrs. EMMON HAWLEY, Bethel, Fairfield Co., Connecticut.

Gents:—I have used your American Preserving Powder the past season, and am very much pleased with it, as are also others who have tried it in this vicinity.
December 21, 1869. Respectfully, Mrs. EMMON HAWLEY.

From AMERICAN AGRICULTURIST, July, 1869.

American Fruit-Preserving Powder.—We have had several inquiries concerning this, and have investigated the matter. We have not used it ourselves, but propose to do so this season. Fruit that was put up last year was perfectly preserved. The powder is, of course, a chemical substance, and as far as we have been able to learn, it is nearly inert; at all events it is not as active as common salt, and in the small quantity in which it is used its presence is not likely to be noticed. If, as claimed, and we see no reason to doubt it, fruit can be preserved in large jars, without any special care to exclude the air, it will certainly be a great blessing to housekeepers.

From Mrs. J. G. WOOSTER, Addison, Steuben Co., N. Y.

Gents:—I used the American Preserving Powder the past season in canning and pickling fruit, and so far it has all kept good and perfectly satisfactory. I like it so well that I shall continue to use it. Respectfully,
January 4, 1870. Mrs. J. G. WOOSTER.

From Mrs. N. C. MCCLOSEY, Hyrer's Run, Pa.

Gents:—The American Preserving Powder has fully answered my expectations. I used it in tomatoes and apple-sance, in large jars with paper tied over the top, and they are as nice to-day as when they were put up. I certainly think it possesses all the merits you claim for it. Very respectfully,
December 31, 1869. Mrs. N. C. MCCLOSKY.

From JACOB PALMER, Bolivar, Tuscarawas Co., Ohio.

Gents:—I used the American Preserving Powder the past season in peaches, pears, grapes, tomatoes, etc., and find it all you recommend it to be. I did not air-tight the jars, and find the fruit, etc., with perfectly natural taste. I shall not do without it hereafter.
January 24, 1870. Yours truly, JACOB PALMER.

From MCDONALD & CADWELL, Lake Port, St. Clair Co., Mich.

Gents:—We sold your American Preserving Powder last season among our customers, and would say they have given entire satisfaction. Yours truly,
December 22, 1869. MCDONALD & CADWELL.

From Mrs. W. W. COMSTOCK, Pardeeville, Columbia Co., Wis.

Gents:—I used the American Preserving Powder last season in tomatoes, and it keeps them well. They taste as fresh as when first put away. Respectfully,
January 6, 1870. Mrs. W. W. COMSTOCK.

From DAVID M. PARRY, Laurel, Franklin Co., Ind.

Gents:—I have tried your American Preserving Powder, and find it a saving of labor, trouble, and time. It is truly worthy of the highest recommendation. Yours, etc.,
December 28, 1869. DAVID M. PARRY.

From JOHN M. FOLLETT, Atkinson, Henry Co., Illinois.

Gents:—We are well pleased with your American Preserving Powder. We tried it last season as you directed for fruit and green corn, and both are just as good to-day as when they were put up. Yours truly,
December 20, 1869. JOHN M. FOLLETT.

From J. VALENTINE, Grinnell, Poweshiek Co., Iowa.

Gents:—All the fruit we put up with the American Preserving Powder last season we find now in good condition. Truly, etc.,
January 11, 1870. J. VALENTINE.

From NOAH SWACKER, Glasgow, Howard Co., Mo.

Gents:—I sold five packages of the American Preserving Powder the past season, and each party has testified that the Powder is just what you claim for it. Yours truly,
January 1, 1870. NOAH SWACKER.

From A. A. HANDY, New Berlin, Chenango Co., N. Y.

Gents:—We used the American Preserving Powder the past season upon raspberries and blackberries. We used one-third less sugar than without the Powder and simply tied paper over the jars. They are as fresh as ever now, and I do not hesitate to say that, in my opinion, it is the cheapest and best method of preserving fruit.
December 28, 1869. Respectfully, A. A. HANDY.

From E. W. SPAFFORD, Portlandville, Otsego Co., N. Y.

Gents:—Your American Fruit-Preserving Powder was used in my family last season, and proves as true all you claimed for it. We have raspberries, peaches, whortleberries, and other fruit preserved with it. The raspberries put up in June in an open jar are to-day fresh and good. Respectfully yours,
December 22, 1869. E. W. SPAFFORD.

From J. W. GILDERSLEEVE, Mattituck, Suffolk Co., N. Y.

Gents:—I sold considerable of your American Preserving Powder last season, and every package gave perfect satisfaction. Respectfully,
December 17, 1769. J. W. GILDERSLEEVE.

From H. NOSS, New Brighton, Beaver Co., Pa.

Gents:—The Preserving Powder received of you last season has given general satisfaction. I gave my neighbors some of it, and they are all delighted, and will use it hereafter. We tried it on green corn, and are surprised to find it in perfect preservation; and tomatoes are much better than many we had in air-tight cans. I found it would keep milk sweet three days in summer season in our pantry, whilst milk without it would sour during one night. I am satisfied it will do all you claim for it. Respectfully,
December 26, 1869. H. NOSS.

From W. M. GATCH, Goshen, Clermont Co., Ohio.

Gents:—I introduced and sold your Preserving Powder here last fall, and so far as heard from it has given satisfaction, and I think I can do well with it next season.
January 4, 1870. Yours, etc., W. M. GATCH.

From JAMES WILLIAMS, Flint, Genesee Co., Mich.

Gents:—My folks are highly pleased with your American Preserving Powder. We used it on most all kinds of fruit, and they are all now in a perfect state of preservation.
December 31, 1869. Yours, etc., JAMES WILLIAMS.

From S. CORNWELL & Co., Weyauwego, Waupacca Co., Wis.

Gents:—We want the agency for this place for your American Preserving Powder. We find the Powder is all right, and gives good satisfaction. We will get you certificates if you want them. Respectfully,
January 18, 1870. S. CORNWELL & Co.

From JAMES S. ODELL, Plainfield, Hendricks Co., Ind.

Gents:—We used the American Preserving Powder last season in my family, and sold one dozen packages, and, so far as I have learned, it gave general satisfaction.
December 22, 1869. Respectfully, JAMES S. ODELL.

Absolute Agencies for a Town, County, or State, given to reliable and enterprising parties upon receipt of an order for a few dozen of the Powder to each County. Send for Manual containing terms. A responsible Agent wanted for all the Pacific Coast; also, for Canada; also, for England, France, and other foreign countries, which offer a large fortune to competent parties.

For Particulars, Testimonials, &c., see Agriculturist for July, 1869, and May, 1870, or send 10 cents for a Manual of 56 pages, containing full particulars and directions for preserving Fruits, &c., to

L. P. WORRALL & CO., Proprietors, 153 Chambers St., New York.

REMOVAL.

In consequence of our rapidly increasing business, and want of room in our present locality, we are compelled to seek more extensive accommodations, and are happy to announce to our friends and patrons that we have leased the large and beautiful Stores,

Nos. 23 Park Place and 20 Murray Street,

a few doors west of Broadway, opposite the new Post-office Building, which are now being fitted up in a most convenient manner, to accommodate the various branches of our business, and will be ready for our occupation about the **1st of June.**

In connection with our Trade in Seeds, and Requisites for the Farm and Garden, we propose to establish a Perpetual Exhibition of the various Products of the Soil, and would inform all interested in the cultivation of

Fruits, Flowers, Plants, Vegetables,
OR GRAIN OF ANY KIND,

who have choice specimens that they wish to exhibit, that they will here have an opportunity of so doing free of charge.

Strangers visiting the City are invited to call at our establishment, whether purchasers or not, as we intend to make our **EXHIBITION TABLES** one of the attractions of the Metropolis.

A Prize Exhibition of Strawberries will be held about the middle of June. Schedules of Prizes can be had upon application.

We take the present opportunity to thank our many friends and patrons, both old and new, for their liberal patronage since our removal to this City, and hope to be favored with a continuance of the same.

B. K. BLISS & SON.

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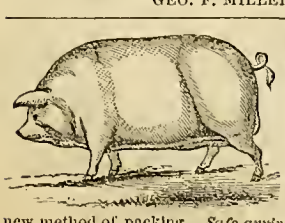

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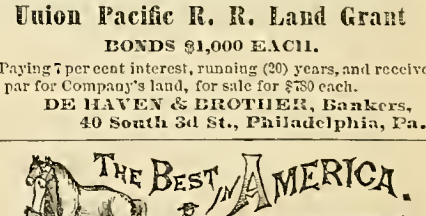

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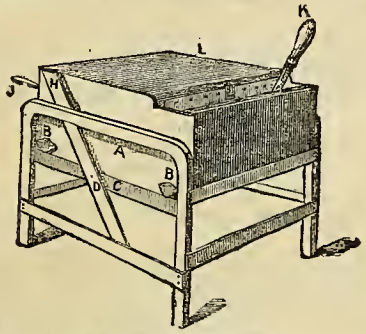

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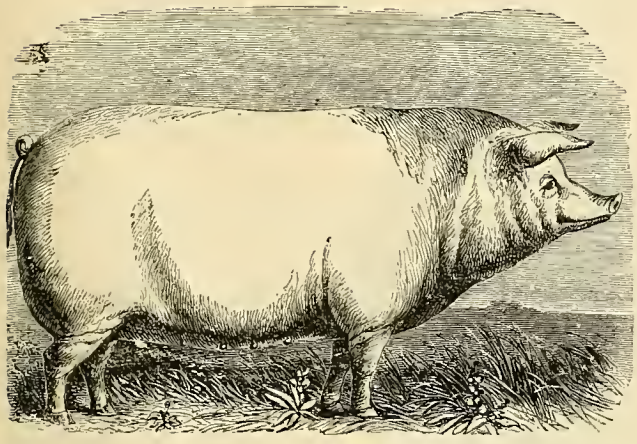

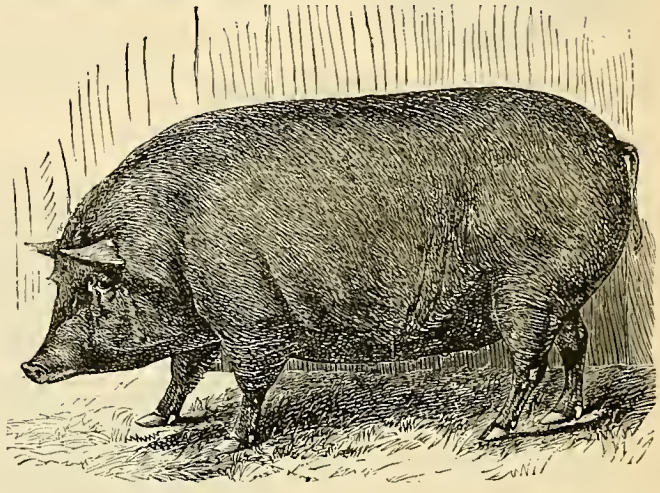

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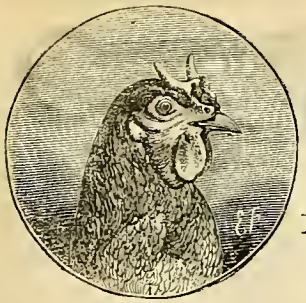

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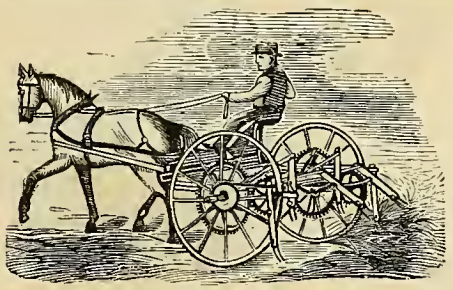

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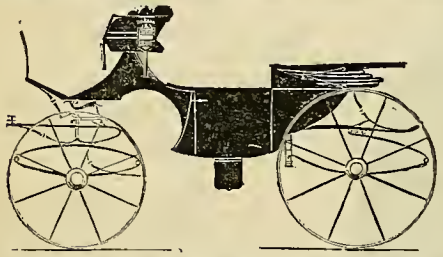

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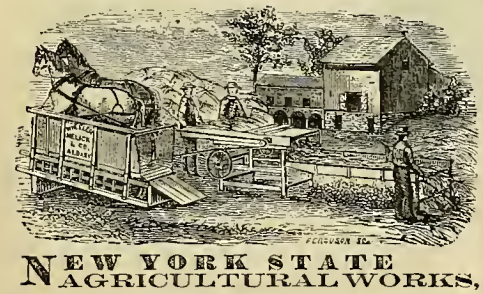

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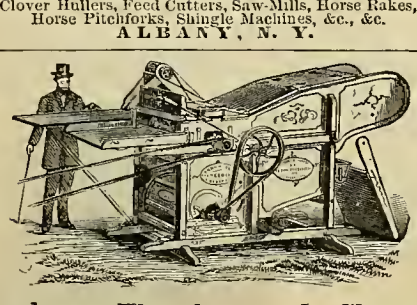

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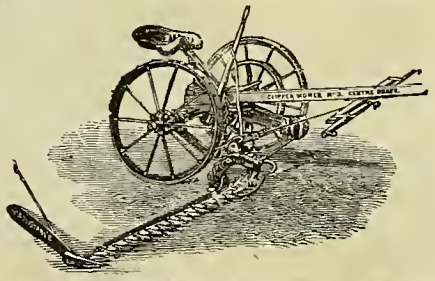

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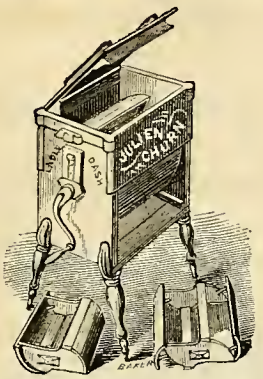

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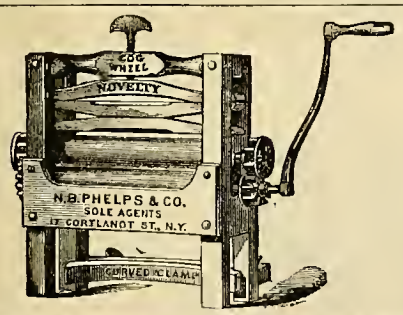

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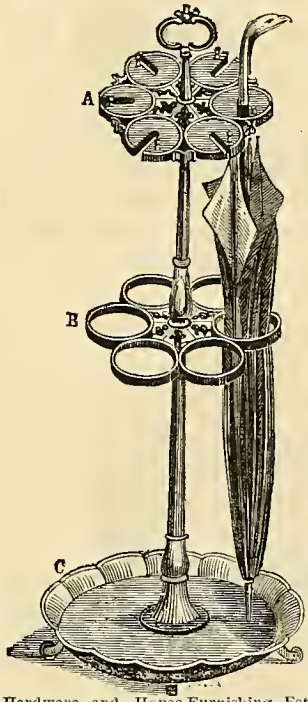

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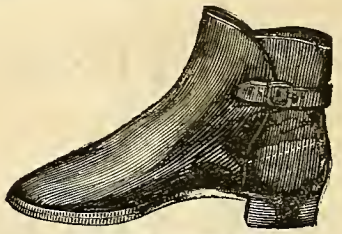

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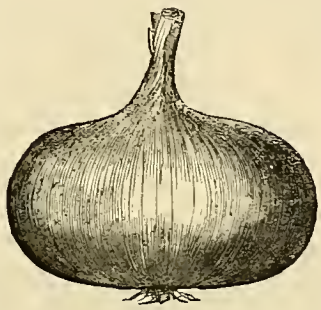
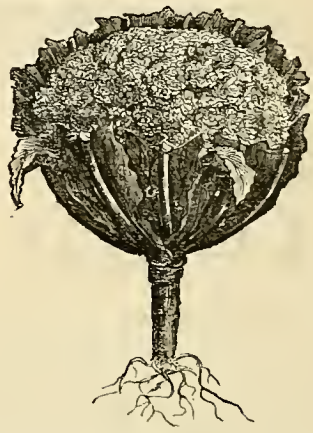

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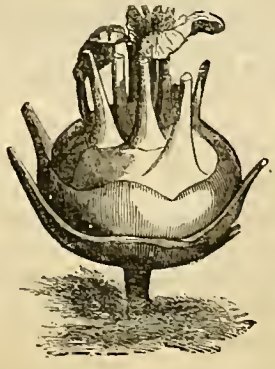

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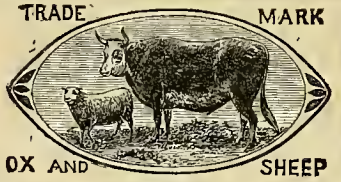

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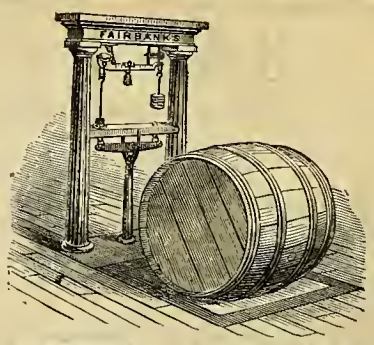

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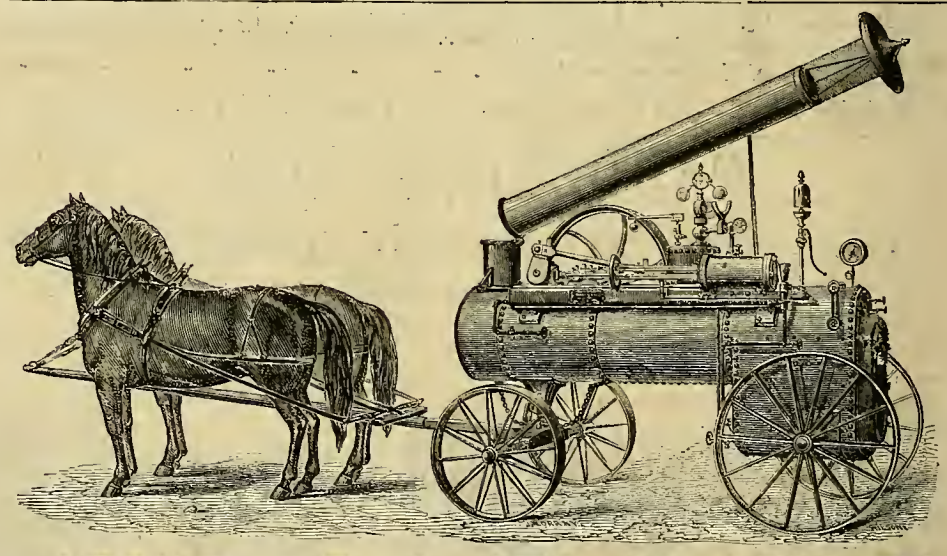

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"AMONG THE SAVAGES."—DRAWN BY WM. M. CARY.—*Engraved for the American Agriculturist.*

Wild horses are very clannish in their ways. If a strange horse enters a herd, he meets with a reception that is more demonstrative than friendly. The artist has represented a horse which has strayed from a train, and fallen in with his wild brethren. He fares as badly as would his owner, should he fall, defenceless, among a party of savages. The wild horse, or mustang, is the incarnation of viciousness. It roams the prairies with a certain rude grace, but submits sullenly to captivity, and though tough and serviceable, is seldom to be trusted. Few, who have not seen them, can have an idea of the immense numbers of wild horses upon the plains of Texas. The writer has seen them by thousands, in every direction, as far as the eye could reach. In some places they were annoying in their approaches, sweeping by the camp at full speed, and making imminent a stampede of the mules and horses. It was sometimes necessary to fire upon the animals to keep them away from the camp. Upon one occasion the train, while moving, was in great danger from the wild herds. Mules are very timid animals, and when once frightened, they become uncontrollable. The wild horses were so numerous, and dashed by the train with such a noise, that the drivers could not control their mules, and it was necessary to stop and secure them. As it was, one team of six mules escaped, and was only recovered after a long chase across the prairies. The direction of the wild herd was changed by a few shots, and after some delay the journey was resumed. The wild horses, now so numerous, are descended from domesticated animals, and are frequently made captives by the Mexicans and Indians, who catch them with the lasso. The murderous Mexican bit soon brings him under the control of a master.

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Calendar for July.

Day of Month.	Day of Week.	*Boston, N. England, N. York State, Michigan, Wisconsin, Iowa, and Oregon.* Sun rises.	Sun sets.	Moon sets.	*N. Y. City, Ct., Philadelphia, New Jersey, Penn., Ohio, Indiana, and Illinois.* Sun rises.	Sun sets.	Moon sets.	*Washington, Maryland, Virginia, Kentucky, Missouri, and California.* Sun rises.	Sun sets.	Moon sets.
		H. M	H. M	H. M.	H. M	H. M	H. M.	H. M	H. M	H. M.
1	F	4 26	7 40	9 51	4 32	7 35	9 47	4 33	7 29	9 43
2	S	4 26	7 40	10 28	4 32	7 35	10 25	4 33	7 29	10 22
3	S	4 27	7 40	11 1	4 33	7 34	10 59	4 33	7 29	10 57
4	M	4 28	7 40	11 34	4 33	7 34	11 33	4 33	7 28	11 32
5	T	4 29	7 39	morn	4 34	7 34	morn	4 40	7 28	morn
6	W	4 29	7 39	0 2	4 35	7 34	0 2	4 41	7 28	0 3
7	T	4 30	7 39	0 33	4 35	7 33	0 34	4 41	7 28	0 36
8	F	4 30	7 38	1 4	4 36	7 33	1 7	4 42	7 27	1 9
9	S	4 31	7 38	1 41	4 37	7 33	1 44	4 42	7 27	1 48
10	S	4 32	7 38	2 23	4 37	7 32	2 28	4 43	7 27	2 32
11	M	4 33	7 37	3 11	4 38	7 32	3 16	4 44	7 26	3 22
12	T	4 33	7 37	rises	4 39	7 31	rises	4 44	7 26	rises
13	W	4 34	7 36	8 25	4 39	7 31	8 20	4 45	7 26	8 15
14	T	4 35	7 36	9 4	4 40	7 30	9 1	4 46	7 25	8 56
15	F	4 36	7 35	9 39	4 41	7 30	9 36	4 46	7 24	9 33
16	S	4 37	7 34	10 8	4 42	7 29	10 6	4 47	7 24	10 4
17	S	4 37	7 34	10 35	4 43	7 29	10 33	4 48	7 23	10 32
18	M	4 38	7 33	10 59	4 44	7 28	10 59	4 49	7 23	10 58
19	T	4 39	7 32	11 24	4 44	7 27	11 25	4 50	7 22	11 26
20	W	4 40	7 31	11 50	4 45	7 26	11 52	4 51	7 21	11 53
21	T	4 41	7 30	morn	4 46	7 26	morn	4 52	7 21	morn
22	F	4 42	7 29	0 18	4 47	7 25	0 20	4 52	7 20	0 23
23	S	4 43	7 29	0 48	4 48	7 24	0 51	4 53	7 19	0 55
24	S	4 44	7 28	1 23	4 48	7 23	1 27	4 54	7 18	1 32
25	M	4 45	7 27	2 14	4 49	7 23	2 19	4 55	7 18	2 24
26	T	4 46	7 26	2 53	4 50	7 22	2 58	4 56	7 17	3 3
27	W	4 47	7 25	3 48	4 51	7 21	3 53	4 57	7 16	3 58
28	T	4 48	7 24	sets	4 52	7 20	sets	4 58	7 15	sets
29	F	4 49	7 23	8 27	4 53	7 19	8 24	4 58	7 14	8 20
30	S	4 50	7 22	9 4	4 54	7 18	9 1	4 59	7 13	8 59
31	S	4 51	7 21	9 35	4 55	7 17	9 31	4 59	7 12	9 32

PHASES OF THE MOON

MOON.	D.	BOSTON. H. M.	N. YORK. H. M.	WASH'N. H. M.	CHA'STON H. M.	CHICAGO. H. M.
1st Quart..	5	11 46 ev.	11 34 ev.	11 22 ev.	11 10 ev.	10 40 ev.
Full.....	12	5 51 ev.	5 39 ev.	5 27 ev.	5 15 ev.	4 45 ev.
3d Quart...	20	9 33 m.	9 21 m.	9 9 m.	8 57 m.	8 27 m.
New Moon	28	6 34 m.	6 22 m.	6 10 m.	5 58 m.	5 28 m.

AMERICAN AGRICULTURIST.

NEW YORK, JULY, 1870.

July is the month which impresses farmers most with the desirableness of knowing how to forecast the weather by premonitory indications. No doubt could one "discern the face of the sky" with anything like accuracy, injury to our grain or grass crop would be prevented, which might amount to thousands, yes, millions of dollars. The duty of the Government in this respect is clear—so far at least as to make use of telegraphic communication between the points of observation which exist all over the country, to convey to the community intelligence of approaching storms. It is not probable that thunder-showers which come up in an afternoon, and clear off before sundown, will be so foretold, that we shall not be in danger of getting our hay wet; but the great storms which do the real damage during haying and harvest, will be thus made known, and we hope the time may not be far distant.

Hints About Work.

Field Work for man and beast from early morning until late evening, leaves the farmer little time for anything else, so long as the weather remains fair. All the hands that can be got may now be employed, and it will pay to get only good men.

Working-Men need to be kept to regular hours of labor, eating, and rest. A little relaxation now and then is a grand thing too. Suppose all hands knock off work an hour or two earlier than usual of a Saturday afternoon and go to the brook or saw-mill pond for a frolic and a swim—depend upon it they will feel better and work better all the coming week. Good, satisfactory food is essential to having faithful work done.

Working-Animals should be very regularly fed and watered, and never over driven if it can be avoided.—Horses must be kept out of drafts, and not watered nor fed grass or grain until cool. Oxen when weary should have food and rest—be unyoked and allowed to lie down if they will. Many oxen will not willingly lie down in the yoke.

Sheep ought to have access to water, though they get along better than any other stock without it.—If, however, we have a succession of dry, cloudy nights, when no dew falls, they may suffer if not watered; and pains should be taken to drive them to water once, daily. The Fly will begin to cause them trouble—see article on Grub-in-the-Head, p 257. If drouth and the lack of upland pasturage force the sheep into the wet grounds, foot-rot may appear, and any lameness should be investigated and proper remedies employed. Early lambs should be weaned, by separating them from the ewes, and putting them on good, fine pasture, out of hearing of each other's call. Look to the ewes in full milk, hurdle them and draw the milk, manipulating the udders if red and swollen.

Swine, if in close pens, should have weeds and sods, and all the waste litter of the farm to work over into manure. Breeding stock ought to have the range of a clover patch—or of more extensive pasture ground. There is no better place for hogs than a well established apple orchard; and a sow with pigs ought surely to have good pasturage, besides the very best feed. Remember, many a sow gives more and richer milk than a good cow, and must have enough feed to enable her to do it.

Haying ought to be well under way. It is often difficult to know which field to cut next. As a rule, cut clover and orchard grass first; though, if white daisies are abundant enough to make up a considerable portion of the hay, they ought to be cut before they come into full blossom. When clover begins to fail, and timothy gains strength on a piece of meadow, the former may be in a measure neglected, and it is best to wait until the timothy is in full blossom. Meadows in which red-top prevails seldom carry clover long—at any rate the two are an unfortunate combination. The piece will not be fit to cut until the first growth of clover has died, and a new growth appeared, and this makes about as poor hay as can be. The second growth of clover will make horses slabber in midwinter, and the sticks of dead clover of the first growth are worth no more than birch brush. If let alone on congenial spots, red-top will drive out almost everything else; and the land will produce a moderate burden of fine, excellent hay, which is fit to cut last of all.

Harvesting Grain.—Make full preparations and be ready for a fair day, when the grain is pretty near right. When oats are raised to be consumed upon the place, it is best to cut them early, while but few heads approach ripeness, as they usually ripen very unevenly. This is supposing the straw to be fed. Otherwise let the majority of them approach ripeness, unless they lodge, in which case cut before they get damaged. Exactly the reverse practice is best with wheat. If it is to be sold it should be cut in the dough state, because a larger quantity of fine flour may be made from it than if cut later; but if it is to be eaten on the farm, better and healthier bread may be made, and a greater weight obtained, if it stands until it approaches ripeness.—The same is true of rye. Let barley be as nearly ripe as it will be safe to have it, to avoid shrinking and shelling; and cut, bind, and shock the same day.

Preparing Land for Winter Wheat.—Wheat is one of our most important crops. The preparation of the land is largely this month's work. *On Summer Fallow.*—Till thoroughly to kill weeds, and make the land mellow and moist. Three plowings is the best preparation for heavy land. Roll and harrow between the plowings; plow immediately before sowing, and drill in the seed at once. After this, no rolling and little harrowing will be required. *On a Clover Lay.*—Where a crop of clover is plowed under in June, it is quite common not to plow the land again, but merely to work the surface and keep down the weeds by the use of the cultivator and harrow. In many cases it is better to plow the land again a short time before sowing; but if some rich, well rotted manure could be worked into the surface with a Shares' harrow, gang-plow or cultivator, it might be better to let the clover sod lie undisturbed. *After Barley or Oats.*—The sheaves may be set up in straight rows of shocks five or six rods apart, and the land between them raked clean with a steel-toothed rake. The land may then be harrowed, and a week or ten days gained, at the best of all seasons of the year for killing weeds. The best farmers plow immediately after the barley is off, and then cultivate and harrow the land thoroughly, and plow again before sowing the wheat.

When barley, oats, or peas, precede a crop of winter wheat, the land is much drier than a properly managed summer fallow, and in seasons of severe drouth, it is no easy task to get such land mellow and moist enough to germinate the seed. We should work the soil two or three inches deep immediately after harvest, and leave the stubble and loose soil on the surface to act as a mulch, and prevent evaporation. We must keep working this surface soil for a month or six weeks with a cultivator, harrow, and roller, to prevent the growth of weeds, and to pulverize the clods. Then plow and drill in the seed immediately. *After Beans or Corn.* The preparation must be done while the crops are growing, giving as much extra tillage as possible.

Manuring Grass Land.—No doubt hot, reeking manure in which ammonia is formed and escaping, loses a good deal of its value in being spread upon a meadow, and exposed to the sun and winds. But that which is not in this condition loses very little, and one overhauling and mixing with muck or earth will effectually prevent loss. Fine compost of this kind, with a little bone-dust and ashes, is the very best dressing mowing lands can have, and it should be applied freely as soon as the grass is cut. A half-rainy day is just the time; then, especially if it rains hard after it is spread, the grass gets the most benefit, and the quick start it will make, and the rapidity with which it will cover the manure out of sight will please every one.

Hoeing and Weed Killing.—Some "hoed crops" will be growing out of hand, and must be "laid by." Our rule is to keep at work stirring the soil and killing weeds as long as it can be done without more damage than profit. When that occurs it is hard to tell in every case. When the whiffletree sweeps down the corn, and when the potato tops no longer stand erect, it is high time to stop. After this the hand hoe may be used somewhat; but it is still more important to go through the crops named and pull the weeds by hand.

Roots—Mangels and Sugar Beets, Carrots and Parsnips, should be tilled by horse hoeing, and thinned by hoe and hand, if not already done. Run a one-horse subsoil plow through between the rows, as deep as the horse will draw it steadily; the effect is excellent, especially in dry weather. Common Turnips may be sown any time this month. Swedes, up to the middle. Sow evenly, using very little seed.

Buckwheat is one of our most profitable crops, at the North at least. It grows quickly, may be a second crop after wheat, rye, or early potatoes, and requires but little manure, while it smothers out many weeds hard to kill otherwise. Sow 3 to 5 pecks to the acre, according to the poorness of the land; 150 pounds of guano will make a crop on almost a blowing sand.

Soiling and Forage Crops may be put in any time this month. Indian Corn is probably better than any other except for haying or late pasturage. Sorghum makes excellent green fodder; sow each in drills 2 feet apart. Hungarian grass, and other kinds of millet will make a crop of hay if sowed early in the month. Later sown winter grain is best, but it must be kept fed off or cut to prevent its going up to head.

Work in the Horticultural Departments.

Our notes for July are written early in June. Usually at this season there have been abundant showers to promote a vigorous vegetation. This year a large extent of country is suffering from drouth; vegetation is checked and ripening premature. We can only stir the soil and hope for rain.

Orchard and Nursery.

Thinning has already been advised, and we refer to it again, as few have courage to thin sufficiently at the first going over. Fruit is likely to be very abundant, and it is all the more desirable to obtain large and fine specimens. When fruit is plenty, a poor lot is hard to dispose of at any price.

Peaches.—In most orchards there will be specimens that ripen prematurely. These, when in sufficient numbers to send to market, bring a good price. Baskets should be procured and marked, and pickers engaged. Directions for making crates are given on page 263. The fruit should be assorted into three grades. It will not pay to send poor fruit to market unless there is a very short crop.

Grafts.—If they have grown vigorously, there is danger of their being broken by winds. Pinch the more rampant shoots.

Pinching and *Pruning* should continue; the first to regulate growth; and pruning is done in anticipation by removing shoots, that have started where they are not needed, while yet young.

Budding usually commences this month, but the condition of the stock is much influenced by the season. Whenever well-formed buds are to be had and the bark of the stock will lift, it may be done.

Insects.—We have in previous months noted the principal ones. The late broods of caterpillars will need watching. Borers have generally laid their eggs. Should the grubs have penetrated the tree, dig them out as soon as discovered.

Black Knot.—Cut it out at the first appearance and burn. No doubt insects do find a lodgment in it, as they will in any soft part of the tree, but they are not the cause. It is a fungus which should not be allowed to mature and multiply.

Slugs, which so disfigure cherry and pear-trees, may be killed by dusting powdered lime from a bag.

Seeds.—Collect cherry-stones and mix with sand to prevent them from becoming too dry.

Fruit Garden.

Grape-Vines.—Keep young growth well tied up, and rub out any superfluous shoot that may start. If mildew makes its appearance, use sulphur freely. Bellows for applying it may be had at the implement stores. Young vines should not be allowed to overbear; a bunch to the shoot is all that a vine should bear at its first fruiting. Beetles and caterpillars will need hand-picking. Layers may be made of the present season's growth, by bending a shoot down and burying a portion of its length.—The extreme end of the layered shoot should be tied to a stake in an erect position.

Currants and Gooseberries.—If the useless shoots are removed as they start, but little pruning will be required in autumn.

Strawberries.—To those who would make new beds, we cannot too strongly commend the method of striking runners in pots described on page 264. The plants, as soon as rooted, may be set out, and will bear a good crop next spring.

Raspberries.—Remove the old canes as soon as the fruit is off, and hoe off all suckers not needed to grow canes for next year.

Blackberries.—The new growth, which is to bear the fruit next year, is to be kept in proper shape by pinching. The canes should not be allowed to grow more than 5 feet high, and the side shoots, which they will throw out, are to be pinched when a foot or 18 inches long.

Dwarf Trees are to be kept in the shape of bushes, pyramids, or whatever style of training may be adopted, by pinching. If a shoot is disposed to grow too long, pinch the end, and if one does not grow as desired, there is probably a more vigorous one robbing it, which should be checked by the same means. What was said about thinning in the orchard is emphatically applicable to dwarf trees. They are particularly apt to overbear, and the best fruit is only to be had by care in thinning.

Kitchen Garden.

The soil should be constantly occupied by some crop. It is very poor gardening to allow a piece, after an early crop is off, to grow up with weeds. As soon as one thing is off, spade or plow up and put in a succession crop.

Beans.—The Limas, when they have reached the tops of the poles, may be pinched. Bush sorts may still be planted.

Beets.—If sown as late as the present month will, in ordinary seasons, make a crop. Thin early.

Cabbages and Cauliflowers.—Transplant the late sorts from the seed-bed. It is well to assort the plants and use only the most vigorous, rejecting any which show malformation of the root. Slugs are often very troublesome, and may be caught by laying cabbage leaves on the ground; they will hide under the leaves, and may be destroyed. Ducks will destroy them. These plants are much benefited by frequent hoeing.

Carrots are to be kept clear of weeds until the tops prevent working between the rows.

Celery.—Sufficient was said last month on p. 221.

Corn.—The early sorts may be sown this month, and give a late picking.

Cucumbers.—Sow for pickles in well-manured soil. For seed, select the earliest and finest shaped.

Egg-Plants need all possible urging. Hoe frequently and give liquid manure. Place straw or hay under the fruit, to keep it from the ground.

Endive may be sown for late salad.

Herbs.—These are best grown as a second crop, transplanting from the seed-bed to occupy ground from which early things have been taken. They grow better late in the season than if put out early.

Leeks may be transplanted to rich soil, placing the rows a foot apart, the plants 6 inches in the row.

Lettuce.—The India is the best for hot weather, and this will do better if shaded a part of the day.

Melons.—Cultivate the ground as long as it can be done without injury to the vines. Remove all fruit that is not likely to ripen.

Onions need to be kept free from weeds. Those who live near cities usually bunch their onions and market the crop before it is ripe.

Potatoes.—Only the early sorts find a place in the garden, and these are usually dug while the tops are yet green. We open a trench and bury the tops, which decompose rapidly, and make an excellent manure for whatever crop may follow.

Rhubarb should have a rest as soon as fruit becomes plenty. Keep the flower-stalks cut off, as they exhaust the roots.

Sweet Potatoes, whether on ridges or in hills, should be kept clean until the vines cover the ground. The vines should not be allowed to root.

Squashes.—Keep the ground clean until the vines take possession of it, and then allow them to root at the joints. Look out for insects.

Tomatoes.—If training is followed, keep the plants tied up to the stake or trellis. They will bear cutting, and fruit all the better for having weak shoots cut out. If nothing better can be done, lay down some brush to keep the fruit from the ground. The "worm," as the large green caterpillar is popularly called, must be removed as soon as discovered, as it spares neither vines nor young fruit.—The notion that it is poisonous is an error.

Weeds are easily kept down if taken early enough. In many soils a sharp rake is the best implement to destroy them with. For more stubborn ones, the hoe-fork is preferable to the common hoe.

Flower Garden and Lawn.

Keeping is one of the chief things to attend to this month. Neatness in the borders, on the lawn, and in the paths, will make a small garden more pleasing than a large one badly kept.

The Lawn will require a weekly mowing. There are several excellent machines at moderate prices. The most of these scatter the grass, which wilts in a few hours, and is not noticeable. It serves as a mulch to the roots, and by its gradual decay adds vegetable matter to the soil. Annual weeds give but little trouble when the grass is mown frequently. The perennial ones should be pulled up or cut well below the surface by means of a knife, or a "spud," which is a sort of chisel with a long handle.

Margins of the turf where it borders upon a bed or a walk should be kept well defined, and no roots allowed to spread.

Supports are essential to the neat appearance of many plants. Whatever is used should be kept out

of sight as much as possible. Petunias and other bedding plants are apt to be blown about by the wind, and should have strings stretched across the bed in several directions. The strings are to be fasteued to pegs which project a few inches above the surface, and are concealed by the foliage.

Climbers.—The new growth will often need directing. Do not allow the new shoots to get mixed inextricably with the old, as is apt to be the case with climbing roses and some others.

Dahlias will need tying to strong stakes, and the sluggish ones may be encouraged by liquid manure.

Bedding Plants, where planted in ribbons, need care to keep them effective. If those in front are inclined to outgrow the others, cut them back; and if the different lines intermix, cut out the straggling branches and keep the colors distinct. Coleus does all the better if cut back and made to grow dense. Some of the Cinerarias and other plants used for their gray foliage, will run up to bloom, and their buds must be pinched off.

Bulbs.—Take up when the foliage begins to turn yellow, and place them under shelter to ripen off; after which pack them away in a cool dry place until time to plant.

Seeds.—Secure as fast as they ripen. Some open their seed-vessels suddenly and scatter the contents; such should be gathered just before this occurs.—Seeds of perennials should be sown as soon as ripe.

Green-house and Window Plants.

There is not much to do to plants out of doors except to prevent them from suffering from dryness....Shade is necessary for Camellias and other plants of similar foliage....Look over the plants occasionally, and see that insects do not make a lodgment upon them....Pinch in unruly growth. ....Hanging baskets must have plenty of water in these hot days....Fuchsias in pots will do better in a partial shade....When plants are kept in the house the glass will need shading; whiting and skim-milk is the material usually applied to the glass....Make repairs while there is leisure.

Commercial Matters—Market Prices.

The following condensed, comprehensive tables, carefully prepared specially for the *American Agriculturist*, show at a glance the transactions for the month ending June 13, 1870, and for the corresponding month last year.

1. TRANSACTIONS AT THE NEW YORK MARKETS.

RECEIPTS.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
25 days *this* m'th.	361,000	2,389,000	664,000	263,000	201,000	817,000
25 days *last* m'th.	231,000	986,000	243,500	12,500	139,000	230,000

SALES.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
25 days *this* m'th.	267,000	2,988,500	1,137,000	78,000	40,000	1,228,000
25 days *last* m'th.	243,000	2,414,000	1,170,000	26,000	154,000	1,206,000

2. *Comparison with same period at this time last year.*

RECEIPTS.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
25 days 1870	361,000	2,389,000	664,000	263,000	201,000	817,000
27 days 1869	306,000	2,363,000	1,284,000	124,000	43,000	946,000

SALES.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
25 days 1870	267,000	2,988,500	1,137,000	78,000	40,000	1,228,000
27 days 1869	248,500	2,119,000	1,516,000	107,000	31,000	1,338,000

3. *Exports from New York, Jan. 1 to June 13:*

	Flour.	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats*
1870	737,097	5,435,282	130,519	36,595	——	9,378
1869	420,294	3,802,539	1,328,869	——	——	40,401
1868	403,556	2,580,805	3,559,097	153,093	——	39,008

4. *Stock of grain in store at New York:*

1870.	*Wheat,* bush.	*Corn,* bush.	*Rye,* bush.	*Barley,* bush.	*Oats,* bush.	*Malt,* bush.
June 7	706,478	69,845	21,891	91,630	488,143	108,775
May 10	1,153,052	110,823	20,502	126,043	440,517	83,000
April 11	1,845,186	285,916	23,249	187,172	756,811	99,988
March 7	2,509,603	434,176	39,089	278,905	1,105,194	97,139
Feb. 11	2,902,633	534,003	62,112	322,425	1,199,672	36,214
Jan. 12	4,423,028	591,903	33,239	34,900	1,310,935	85,405
1869						
Dec. 11	3,810,562	833,909	50,043	285,906	1,386,594	77,097
Nov. 10	1,616,080	693,085	31,700	31,584	281,581	66,732
Oct. 11	978,272	445,068	34,467	5,948	120,950	67,094
Sept. 6	745,121	127,736	56,081	——	183,920	134,870
Aug. 9	634,262	253,155	75,797	361	50,219	105,458
July 10	531,657	323,613	71,418	2,966	259,985	97,177
June 7	637,877	385,241	107,546	383	555,993	109,346
May 11	1,056,018	394,156	107,502	17,684	613,166	77,577

5. *Receipts at head of tide-water at Albany each season to June 8th:*

	Flour bbls.	*Wheat,* bush.	*Corn,* bush.	*Rye,* bush.	*Barley,* bush.	*Oats.* bush.
1870	33,400	1,900,600	127,700	41,200	78,900	382,500
1869	28,500	1,534,000	718,000	124,400	11,800	519,600
1868	65,700	3,684,900	3,297,400	149,200	326,300	1,864,800
1867	17,100	21,700	592,100	28,000	28,200	276,500
1866	34,200	317,200	2,090,700	64,300	44,700	898,700
1865	94,100	547,900	731,800	51,000	114,300	1,941,300

CURRENT WHOLESALE PRICES

	May 13.	June 13.
PRICE OF GOLD	114¼	113¼
FLOUR—Super to Extra State	$4 90 @ 5 90	$5 20 @ 6 40
Super to Extra Southern	6 25 @10 00	6 25 @10 00
Extra Western	5 25 @ 9 75	5 60 @10 00
Extra Genesee	6 00 @ 8 00	6 50 @ 8 50
Superfine Western	4 90 @ 5 20	5 20 @ 5 50
RYE FLOUR	4 30 @ 5 65	4 60 @ 5 75
CORN-MEAL	4 75 @ 5 80	5 25 @ 5 75
WHEAT—All kinds of White	1 35 @ 1 85	1 50 @ 1 90
All kinds of Red and Amber	1 00 @ 1 36	1 10 @ 1 46
CORN—Yellow	1 17 @ 1 20	1 10 @ 1 25
Mixed	1 04 @ 1 17	93 @ 1 09
OATS—Western	64½@ 70	65 @ 71
State	69 @ 70	70 @ 71
Canada	— @ —	63 @ 65
RYE	1 03 @ 1 14	1 05 @ 1 14
BARLEY	70 @ 95	Nominal.
HAY—Bale ₱ 100 lb	90 @ 1 25	75 @ 1 05
STRAW, ₱ 100 lb	60 @ 1 00	50 @ 1 05
COTTON—Middlings, ₱ lb	23½@ 24¼	22 @ 22¾
HOPS—Crop of 1869, ₱ lb	10 @ 25	12 @ 25
FEATHERS—Live Geese, ₱ lb	80 @ 85	80 @ 85
SEED—Clover, ₱ lb	14 @ 14¾	13½@ 14½
Timothy, ₱ bushel	7 50 @ 8 00	7 25 @ 7 75
Flax, ₱ bushel	2 15 @ 2 25	2 20 @ 2 35
SUGAR—Brown, ₱ lb	8 @ 11½	8¾@ 11¼
MOLASSES, Cuba, ₱ gal	20 @ 45	22 @ 45
COFFEE—Rio, (Gold, in bond)	10 @ 14	9½@ 13
TOBACCO, Kentucky, &c., ₱ lb	6 @ 13	6 @ 13
Seed Leaf, ₱ lb	8 @ 70	8 @ 70
WOOL—Domestic Fleece, ₱ lb	40 @ 63	40 @ 60
Domestic, pulled, ₱ lb	20 @ 47	22 @ 45
California, unwashed	15 @ 29	17 @ 30
TALLOW, ₱ lb	9¼@ 9¾	
OIL-CAKE—₱ ton	39 00 @40 00	41 50 @42 75
PORK—Mess, ₱ barrel	29 12 @29 50	30 45 @30 62½
Prime, ₱ barrel	22 00 @23 50	22 00 @23 50
BEEF—Plain mess	10 00 @18 50	12 00 @18 00
LARD, in tres. & barrels, ₱ lb	15 @ 17	14¾@ 16½
BUTTER—Western, ₱ lb	20 @ 35	15 @ 30
State, ₱ lb	20 @ 38	20 @ 31
CHEESE	6 @ 17½	5 @ 17½
BEANS—₱ bushel	1 20 @ 2 50	1 20 @ 2 50
PEAS—Canada, in bond, ₱ bu	97 @ 1 00	1 10 @ 1 15
EGGS—Fresh, ₱ dozen	16 @ 18½	22 @ 24
POULTRY—Fowls & Chickens	20 @ 21	18 @ 20
Turkeys, ₱ lb	21 @ 22	18 @ 21
Geese, ₱ pair		1 25 @ 2 50
POTATOES, ₱ bbl	1 00 @ 2 00	50 @ 75
New Bermudas, ₱ bbl	7 00 @ 8 00	8 00 @ 9 50
APPLES—₱ barrel	1 50 @ 4 50	2 00 @ 6 00
SWEET POTATOES, ₱ bbl	— @ —	— @ —
TURNIPS—₱ bbl	— @ —	— @ —
CABBAGES—₱ 100	7 00 @10 00	4 00 @ 8 00
ONIONS—₱ bbl	4 00 @ 7 00	3 50 @ 5 00
CRANBERRIES—₱ bbl	— @ —	— @ —
BROOM-CORN—₱ lb	10 @ 14	10 @ 15
Tomatoes, new, per box	75 @ 1 00	75 @ 1 00
Peas, green, per bbl	— @ —	3 00 @ 3 50
Rhubarb, per 100 bunches	2 50 @ 4 50	1 75 @ 4 00
Asparagus, per bunch	25 @ 40	15 @ 28
Beans, Charleston, per crate	— @ —	3 00 @ 3 50

Gold has been less active during the month, closing heavily at 113¼....There has been an unusually active demand for the leading kinds of Breadstuffs since our last, chiefly for Spring and Amber Winter Wheat, and shipping grades of Flour, which have been sought after by English, French, and German buyers, as also to some extent on speculative account, at advanced prices. The receipts have been moderate, and the stocks in store having been much reduced, considerable sales have been made for forward delivery. At the close, Flour is quoted very firm on all grades; while Wheat is heavy and weak in price. Corn has been active and held with confidence, as a rule. Oats have been in brisk request, closing with an upward tendency. Rye has been moderately sought after by export buyers within our range. Barley has been neglected and nominal....Cotton has been in less demand and lower....Wool has been offered freely at easier prices, but has not been in much request, closing heavily and irregularly....Hay has been depressed in price, under pretty free receipts and a moderate demand ....Hops have been more active and quoted firmer toward the close....Provisions have been moderately dealt in, closing weak....Tobacco has been dull and heavy.

New York Live-Stock Markets.—

WEEK ENDING.	*Beeves.*	*Cows.*	*Calves.*	*Sheep.*	*Swine.*	*Tot'l.*
May 17th	5,713	56	4,213	16,672	21,434	48,088
do. 24th	6,968	84	4,214	18,781	19,784	49,831
do. 31st	6,246	70	4,026	13,816	21,606	45,763
June 7th	5,949	84	3,741	25,266	15,125	50,165
do. 14th	8,256	100	3,373	24,389	22,192	58,310
Total in 5 Weeks	33,132	391	19,567	98,924	100,140	251,157
do. *for prev. 4 Weeks*	25,121	331	14,924	57,573	57,083	155,032
	Beeves.	*Cows.*	*Calves.*	*Sheep.*	*Swine.*	
Average per Week	6,626	78	3,913	19,785	20,028	
do. do. *last Month*	6,280	84	3,731	14,893	14,271	
do. do. *prev's Month*	5,581	133	1,459	15,755	10,645	
Average per Week, 1869.	6,275	92	1,752	28,836	15,348	
do. do. do. 1868	5,733	105	1,588	27,182	18,809	
do. do. do. 1867.	5,544	64	1,320	22,154	20,605	
do. do. do. 1866.	5,748	94	1,200	20,000	13,000	
do. do. do. 1865.	5,255	113	1,500	16,091	11,023	
Total in 1869	326,280	4,827	91,083	1,499,509	798,199	
Total in 1868	298,128	5,466	82,571	1,413,479	978,061	
Total in 1867	293,832	3,869	69,911	1,174,154	1,102,643	
Total in 1866	298,880	4,885	62,420	1,040,000	672,000	
Total in 1865	270,274	6,161	71,991	836,733	573,190	
Total in 1864	267,609	7,603	75,621	782,462	660,277	

Beef Cattle.—The supply not being equal to the demand, prices took an upward tendency, until the last week of our report, when unusually large arrivals sent the prices down ½c. for the best qualities and 1c. for poor. Grass-fed beef averages much better, the flesh is firmer and with less waste. The weather has been extremely warm and dry for the season, and butchers refused to buy in large lots, only purchasing such as would sell from day to day from the stall. For the week ending May 31st the supply was quite insufficient, and prices advanced ¼c. to ½c. per pound for good beef. We set the advance through the month over prices paid last month at from 1c.@1½c. per pound on best grades, and a little more on medium stock. Below we give the list of prices paid, the average prices, and prices for largest sales.

May 17th, ranged	13 @17½c.	Av. 16½c.	Large sales	16 @17c.
do. 24th,	do. 14 @17½c.	do. 16 c.	do.	do. 15½@17
do. 31st,	do. 13½@17½c.	do. 16½c.	do.	do. 16 @17
June 7th,	do. 13 @18 c.	do. 16½c.	do.	do. 16 @17½
do. 14th,	do. 10 @17½c.	do. 16 c.	do.	do. 15½@16½

Milch Cows are not so much called for, and trade is rather slow. Good cows always sell well, but we see too few of them. The supply for the past month has been mostly of rather poor stock, and consequently brought low prices. A few good cows reached as high as $100 each, but the majority sold below $70 each. Prices range about the same as last month; i. e., from $50 for poor to $90 for good. ..**Calves.**—The supply was steady and even in quality during the month. The prices paid from week to week show but little change. The quality, we think, has averaged better than last month. Calves are seldom so poor as to sell for less than 7c. a pound, and it takes a good one to bring 10c. Some very extra fat sold as high as 10½c. per pound, but this is a little above the market. We quote prices at from 7c.@10c. per pound....**Sheep.**—The numbers have been large and gradually increasing each week. Trade has been slow, except for very best quality, and prices are on the decline. Some very poor lots brought only 4¾c. per pound, and good sheep are offered at from 7c.@7½c. per pound. Lambs are plenty and sell at 13c.@14c. from fair to good; lighter lots go at 10c.@12c., while a few very extra brought 14½c. per pound... **Swine** go almost at once to the slaughterers, and but few are on sale alive. The arrivals, it will be seen, have been slightly larger than last month, with but little change in price. The few sales for live hogs were at from 9¾c.@9⅞c. Dressed pork at the close of our report brings 12⅛c. per pound.

Storm and Flood Signals.

—A. Watson, Washington, D. C., sends us a circular from which we extract the following: "It is estimated that more than one-fourth of the hay and grain crops are, on an average, injured annually by storms during harvest. Large quantities are cut down, and then a storm comes on suddenly or as a settled rain, and they get wet to a degree that they are materially damaged. If farmers had warning of these approaching storms in time to get their grain or hay under cover, or in a situation to shut out the rain, much of this injury would be prevented. By the adoption of the following simple plan, it is believed that this can be effected at a trifling cost. When a storm has formed and commences to travel in any certain direction, the first telegraph station or stations over which it passes are to send the news to all the telegraph stations at cities, county-seats, and principal towns, scores or a hundred miles in advance, according to the kind of storm or probable distance that it may travel, always keeping a suitable distance in advance. At each city, county-seat and principal town, a cannon is to be kept ready by the officials at the court-house, or by a fire company, and as soon as the news is received of a coming storm, it is to be fired THREE times; at intervals of *one* minute if a tornado, thunder or hail storm, terrific gale or any destructive storm is approaching; at intervals of *three* minutes if an ordinary rain storm is approaching *rapidly*; at intervals of *six* minutes if an ordinary rain storm is approaching *slowly* and at intervals of *ten* minutes if a destructive river flood is approaching. In case of very destructive storms or floods, the signals may be repeated, after a suitable interval, to give additional warning. At large cities, when a destructive storm is approaching, fire and church bells may also be rung, and steam whistles be blown three times at the same intervals as the guns, to increase the warning. As a good-sized cannon can be heard from 15 to 20 miles in every direction from the place of firing, or over a space of from 30 to 40 miles square, (1,600 square miles), by firing one at each county-seat and principal town, the farmers over the whole country, in harvest time, will be warned to stop cutting, and to get their grain or hay under cover, or in a situation to shut out the rain; thus saving not only that portion which had been cut and cured previous to the warning, but also saving that portion which otherwise would have been cut during several hours or a whole day without such warning. This plan has been approved of by the Western Union Telegraph Company, which owns a large majority of the lines throughout the Union; and in order to test the system will supply telegrams of approaching storms, whenever any considerable number of cities and towns shall make arrangements to fire signal guns according to the plan proposed. Through a recent act of Congress to establish storm signals at forts and military stations, this plan will be tested on rivers, lakes, bays, and on the coast for the benefit of commerce, and incidentally of agriculture. But as these military stations are not numerous, and will be of inconsiderable utility to agriculture, except to test the system, it is therefore recommended that agricultural societies and city and town authorities take immediate measures to establish the signals at every city, county-seat, and principal town having telegraph facilities."

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containing a great variety of Items, including many good Hints and Suggestions which we throw into smaller type and condensed form, for want of space elsewhere.

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Bound Copies of Volume XXVIII (1869) are now ready. Price, $2, at our office; or $2.50 each, if sent by mail. Any of the previous twelve volumes (16 to 28) will be forwarded at the same price. Sets of numbers sent to our office will be neatly bound in our regular style at 75 cents per vol., (50 cents extra, if returned by mail.) Missing numbers supplied at 12 cents each.

AN IMPORTANT PAPER.—In addition to the usual valuable reading matter given throughout these pages, our readers will find in this number an important article on *Poison Antidotes*, which should be carefully studied and treasured where it will always be available for reference in a moment. The house plans will meet the wants of a great number of persons directly, or indirectly by way of suggestions,—judging from the very numerous inquiries for just such information. Other plans will be given hereafter, which will answer many other inquiries for a convenient house of moderate size. This is a good time for new subscribers to secure the *American Agriculturist* cheaply for five or six months.

Are you Ashamed of your Name?—It is astonishing to see how many will write upon matters of importance to themselves, and then withhold their names. Anonymous letters, as a rule, go into the waste basket. Here are two letters in a parcel we have just taken up. "N. A. Y.," San Francisco, asks about a plant, of which we happen to have a stock, and had the name been given we should have willingly sent a specimen. Three young men, "A. B. C.," ask about going to Missouri. We cannot answer such personal matters in the paper, but we could have put them on the right track, had there been any name to which to address a reply. It is not only decidedly proper to sign letters, but in such cases as these it is to one's advantage.

The "Mexican Everbearing" Strawberry.—This berry seems to have the effect of the "insane root" upon its advocates, and at last our usually amiable friend the Gardener's Monthly is affected. Its first symptoms were shown in asserting its infallibility of judgment; but now it is taken worse, and quotes from the Hearth and Home what it calls a "brilliant specimen of vulgarity," and talks "of low bar-room wrangles" and the "slums of New York," which it never would have done but for the pernicious influence of this strawberry.

Fruit and Crops in Georgia.—J. S. Baker, of Brooks Co., writes: "A writer in your paper last year, from Georgia, stated that Raspberries cannot be raised successfully in Georgia. I raise here, within ten miles of the Florida line, Common Black Caps, Downing's Improved do., and the Imperial Red. The last, however, only on the north side of a wall. The first named I succeeded in cultivating in the suburbs of Jacksonville, Fla. We are suffering from a very severe drouth—gardens are ruined, our pindars parched, beets baked, potatoes roasted, beans and squashes well stewed—all by solar heat, without the aid of a stove. Though the heavens withhold *rain*, cotton has resumed its *reign*. The consequence is, corn is scarce, and bids fair to be far more scarce another year."

Tomatoes—Raise and Save Plenty of Them.—Nothing else, except potatoes, supplies a better standard article of food through the whole year. Cooked with plenty of bread crumbs they furnish a very palatable and nourishing table dish, especially from December to June, when fresh garden vegetables are not abundant. Having sometimes failed with glass jars, we now use tin cans, 10 inches long and 4¼ inches in diameter (cut from a sheet of tin 10×14 inches, and cheaply made). A hole, say 1¼ inch in diameter, is left in one end. The tomatoes, in large quantity at a time, are cooked well, as for the table, but without salt. They are poured into the cans hot, and a bit of tin well soldered on. We put up 15 to 40 cans at a time, and call in a tinman to do the soldering, as we have a large number of cans ready at a time. Thus closely sealed they will keep perfectly a month, a year, or five years. To provide against a poor year, and insure a full supply always, we put them up for one or two years in advance. Scald the emptied cans and set them away dry, and they can be used several times with a little help from the tinman to smooth the heads.

Preserving Strawberries, Blackberries, and Raspberries.—Pick clean, put in a porcelain-lined vessel with one-fourth to one-half the weight of white sugar, and a few spoonfuls of water, just enough at the bottom to prevent burning, as these fruits furnish juice enough. Heat slowly for a few minutes, and as soon as the sugar is dissolved, raise to a boiling heat, and dip carefully into the warm bottle so as not to break the fruit. Keep in a cellar or other pantry not subject to much heat.

Preserving Currants.—Press and strain the juice out of a quantity of currants. Then take, say, 8 pounds of fresh, stemmed fruit, and put with it a quart of this juice and 10 pounds of sugar. (A pound or two of raisins improves the flavor.) Cook the whole well, boiling it half an hour or so. Then bottle. This is a pleasant sweetmeat. When desired for eating with meats, some add a little vinegar and spices with the sugar. Bottle as above directed.

Whortleberries. — Prepare the same as strawberries, except that more water will be needed. For other, later fruits, see our next paper.

Shall I Sell My Farm?"—A New England Farmer bought a farm of 80 acres three years ago. He owes on it $2,600, at 6 per cent interest. Has paid his interest regularly, and some on the principal; but last winter he boarded a number of railroad employes, and lost $300 by the operation. This has so discouraged him that he fears he may lose his farm, and he writes to ask if he had better sell the farm, and turn foreman. He does not give us all the facts necessary to form a correct judgment on the point; for instance, as to what his farm cost, and how much he has paid since the purchase. But we think he is unnecessarily discouraged. He has nine head of cattle, and, two years ago, took his cows to a thorough-bred Jersey bull in the neighborhood "for the purpose of improving his dairy stock." This is an encouraging sign. He is also making a good deal of manure, which is another good sign. On the whole, we would not sell unless an opportunity occurred to do so to good advantage. If the farm is improving, the debt will be paid by and by. We should be more anxious about cleaning and enriching the land, and about getting good stock, than about reducing the debt. If a farmer is getting a living, and is judiciously improving his farm, he is not doing amiss. It is not pleasant or always safe to be in debt, but a farmer may do worse things than pay 6 per cent for money.

Sundry Humbugs.—One of the worst thieves—a stealer of virtue and morality—has got a very small share of his deserts; viz., a year in the State Prison with $1,000 fine, and to stand committed until that also is paid. This is Jas. S. Colgate, who called himself the "Eureka Photograph Company." His conviction is due to the persevering efforts of Mr. James Gayler, Special P. O. Agent. We hope every one who can, will aid Mr. G.'s praiseworthy efforts to ferret out, punish, and stop swindling, especially when through the mails, by sending him any information with regard to the operations of swindlers. His address is the New-York City P. O. Our members of Congress can hardly do a better thing than to speedily pass the bill now pending, for the suppression of swindling by mail.....Rufus Stockton, pretending to be Stationer, etc., at 204 Broadway, invites money for the "queer", alias photographs, which are neither money nor counterfeits, if he sends anything. He has a wholesome fear of Mr. Gayler, and so in his circulars tells you no less than 13 times to send money "only by express." For any money sent to this scamp, nothing useful will come back.—We have a lot of "documents" from other counterfeit money pretenders, which have been referred to in previous chapters, as Hitchcock, Wagner, etc. One of these chaps has a lot of taking lithographic letters all alike, and he writes on a variety of names, P. O. addresses, etc., as D. A. Dexter, East Albany, David B. Stack, East Albany, with other names at other adjacent Post-Offices—a cheap and convenient way of dodging the officials. W. H. Wood & Co., Gleddings, C. C. Perry, A. C. Collins, etc., are new *names* of old bogus money operators.....We have many letters showing how our exposures of "Sun Light Oil," and other humbugs, have saved many dollars—tens of thousands in the aggregate.....People cannot be too cautious with respect to any of the manufactured so-called "non-explosive oils." Whatever the venders may say and show in their favor, it is safe to give all the *manufactured compounded* oils the go-by....Many circulars continue to come, from G. W. Harris & Co., "receivers"—pretending to give a "gold watch and chain valued at $200," on the receipt of 5 per cent. This is a swindle; they don't give a watch worth $200, no, nor even one costing $10. .....To H. C. A., and others. Lotteries are, of course, all humbugs and cheats. Most of the pretended agents keep all the money they get, and return nothing, unless it be bogus printed tickets containing none of the real numbers, so that it is impossible for their dupes to draw any prize. A few States still legalize lotteries. The U. S. Government has nothing to do with them, except to put a revenue tax on all dealers in lottery tickets, in common with other dealers. These dealers pay their tax, and herald this as a U. S. endorsement. Any peddler might as well claim that the U. S. Government endorsed and recommended his shoddy goods by issuing to him a peddler's license on payment of a small fee.....It can hardly be necessary to denounce such humbugs as one at Fultonville, N. Y., who advertises to send the likeness of a *future* husband or wife for 35 cents, and other particulars for *more* money. None but simpletons or fools would send money to such pretenders, and this class are not likely to *read* any caution.....To "E. M. D." It is useless to send us anonymous inquiries. The swindlers often try that scheme, hoping in some way to annoy us. .....To several subscribers: The "Howard Association" consists of an advertising doctor—a "quack," of course—who has a great skill in working upon the fears of people, and in making promises, and—in getting the last dollar that can thus be squeezed out of them....."A Victim" writes us, that he sent $5 as security to some chaps in a couple of Maine towns, who offered $250 per month. He received a few samples, too poor to give away, and that is the last he can hear from his $5. This is an old dodge still extensively practised, and is the general result of the tempting offer of $100, $200, $250, and other large sums per month to "agents." Never send any money in advance to any such parties, not even a postage stamp; and never allow them to send you anything "C. O. D." (collect on delivery.) You

cannot examine the article until you have paid the "C. O. D.," and then you are as badly off, as if you sent the money on by mail. (One party sends us specific charges against certain parties, and wants us to publish them—but don't give us his own name. How are we to prove these charges, if the accuser and witness keep out of sight? Give us the proofs and witnesses, if you wish us to assume specific charges.)..... A "Watch" man sends a special circular to editors, inviting them to buy, and sell, and advertise his watches. We shall not "show up" that scheme now. If any editor is not sharp enough to see through this, he ought to try it, and get his eye-teeth cut, and then he will be prepared to enlighten his readers, and will be less likely to advertise "aluminous" and "oroide gold" watches, etc.. .... A "Greenhorn," who "feels kinder sick, and won't do so any more," sent $2, and 75 cents for postage, to get a very valuable "time-keeper" from "R. S. Ellerton, Fourth St., Williamsburg," and he got—well, "a wooden compass," *alias* wooden sun-dial, *alias* $00.00—the usual value of these advertised, cheap watches and "time-keepers." ....."Norfolk Conn's" experience in sending $10 for an Armstrong Watch, to R. F. Wood & Co., 899 Broadway, and then not being able to find any such parties there, is the usual experience of the thousands who send money for watches advertised cheap. Watches are a standard article, and cannot be bought under their real value. The low-priced advertised watches are, in 999 cases out of a 1000, cheats. Buy only of well-known, *responsible*, reputable dealers, and get what you pay for, whether it be $15 or $50, or more. This must serve as an answer to a lot of watch letters and circulars, recently sent to us, which we can not describe in detail.....A chap in W. Va. advertises stamps for making gambling cards. As none but gamblers will want his stamps, they may as well send their money to him, and get nothing in return, as to lose it otherwise—perhaps better, for then they will have less to gamble with, and will not be so able to bother and cheat others.....*Recipe sellers* are pretty numerous throughout the country — recipes for making honey, washing compounds, inks, silvering powders and fluids, vinegar, soaps, liquors, medicines, etc., etc., etc. Nearly all or quite all of them have been published as newspaper items, and few, if any of them, are of real worth; but a well-told story about them brings in the "stamps," the dollars, and the $V's. A few shrewd men have collected and printed from twenty to sixty of these receipes on single sheets, costing two to three cents each, and by advertising largely for agents, or "employment" on high pay, and a plausible setting forth of their pretended merits, and giving a very taking financial show, they have succeeded in getting thousands of persons to send them $2 to $5 for the worthless sheets. Simple-hearted, trusting people part with their money very easily, and so these chaps thrive. We repeat our oft-given caution: Pay no money for any such recipes advertised in newspapers or by circular. For example, one man gets $5 for telling you to let cider or alcohol trickle over shavings, a thing published in books and papers for half a century or more; and so of many others. .....Life Insurance Companies, on entirely new and wonderful plans, will bear letting alone severely.....To J. G. C.—Your 3-cent stamp was well invested in drawing out the real character of the so-called "American Knitting Machine Co., of Boston," if the profanity came from the operator. A genuine company would be likely to give its exact location.....But our space is more than full, with a lot more of humbugs on hand for attention.

P. S.—A great "Gift Concert," for "*California* Mercantile Library," is just advertised in glowing colors. The investor of $5 in a ticket is quite as likely to be struck with lightning, as to get the grand prize of $100,000, with his *one* chance in two hundred thousand! Send a present of $5 to the said library, *if* it needs it, and *if you* want to give it, but pray let this lottery alone. This is just what **199,372** persons will say afterwards; that is *if* the 200,000 tickets *are* sold, and *if* any distribution *is* made.

How to Manage Spring Pigs.—"I. H. C.," Delaware, Ohio, writes: "I want to know the most profitable way to manage spring pigs, whether to give them all they will eat and fat them this fall, or to winter them over and fatten them next summer?" It depends on the breed, the food at command, the conveniences for feeding, the probable price of pork next fall, and the price a year hence. We should premise, however, that in any case the pigs should have all they will eat of some kind of food. The only difference to be made between growing pigs and fattening pigs is in the character of the food. A fattening pig requires rich, concentrated food; a growing pig a more bulky and less nutritious food; but in either case the pig to do well must have all it will eat. If you have a small-boned, well-bred pig, such as a grade Essex or Berkshire or Suffolk, we think it would be far more profitable, as a rule, to fatten spring pigs than to winter them over. Let them have the run of a clover pasture, all the milk and slop from the house, and all the corn or other grain they will eat and *digest*. The latter point must be carefully attended to. Soak the meal or whole grain in water for 24 hours before feeding. If well-bred, such treatment should give you pigs that will dress 300 lbs. by the first of December. On the other hand, if you have a coarse, large-boned breed of pigs, the better plan will be to winter them over. In this case, give them the run of a good clover pasture, plenty of water, what wash from the house you have to spare, and a little grain to keep them growing as rapidly as possible. You will find this subject treated on at considerable length in "Harris on the Pig."

Transplanting and Watering.—"W. S. B.," Cass Co., Ind. In setting out cabbages, if the soil is very dry, make holes with a trowel, pour in a pint or more of water, and set the plant. We do not like to water in a dry time, unless it is necessary to save the life of the plants, as, if commenced, it must be continued until a rain comes.

Sparrows.—W. B. Christopher. The European Sparrow is thoroughly established in New York and vicinity. Imported birds are sold at about $1 a pair. They need to be furnished with small box houses, and in winter should have food scattered where they can find it. We do not know that they will destroy the Canker-worm, but have no doubt of it.

Trouble with Vines.—"D. D.," Winfield, Ind., in training Concords on the horizontal arm system, finds that some of the buds did not start. The Concord is usually very tractable. It may be that the fall pruning was too close, or that the Vine Flea-beetle has been at work at the buds.

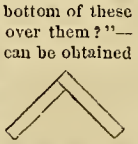
Thomas' Smoothing Harrow.—This implement was mentioned in the Ogden Farm Papers for June, and several have inquired where it can be had. We cannot inform them. It is probably designed for a select few, or the makers would advertise.

Trial of Farm Machinery in Wisconsin.—A circular from the Ripon Farmers' Club informs us that arrangements have been made for a great trial of Farm Machinery. The time will be announced hereafter. Particulars may be had by addressing D. T. Glaze, Secretary of the Club.

Cooking Corn on the Cob.—"G. A. T.," Utica, Ill. We cannot tell whether it would or would not pay you to steam the ears of corn. Are inclined to think it would not, unless you have every convenience for the purpose, and do the work systematically, and on a large scale. We think it will nearly always pay to soak corn in water for 24 or 36 hours before feeding. See the chapter on cooking food in "Harris on the Pig." Shall be glad to hear the results of the experiments you allude to.

Is there any difference between Winter and Spring Barley? "M. V.," Kansas. Certainly; as much difference as there is between winter and spring wheat. The winter barley is heavier, and ought to bring the highest price; but in sections where little of it is raised, it will not bring as much for malting as six-rowed spring barley.

Draining.—"Kentucky" writes: "I have some wet strips of ground in my fields which have been drained by open ditches, but I find it impossible to stop bushes growing on the ditches. Would it draw the water off if I were to lay drain tiles in the bottom of these ditches, fill them up level, and cultivate over them?"—*Ans.*—If tiles are within easy reach and can be obtained on the place at a cost of about $40 per 1,000 feet—it will pay to use them—otherwise use hemlock boards four and three inches wide, nailed together as here shown, breaking joints. Put them in the dug out and deepened bottom of the ditches and fill them in.



Plowing with Three Horses.—Billings Hobart, of West Va., writes: "There are thousands of farmers that have never seen 3 horses work abreast in a left-hand plow, who would be much benefited if they knew the facts relating to the subject. Two 3-horse teams with two plowmen, can do as much work as three 2-horse teams—thus saving the labor of one man. By working a steady horse as leader, i. e., on the left, with a left-hand plow, he walks in the furrow, and guides the other horses by jockey sticks—little driving is required; do that little with a single line; a steady pull for 'haw,' two or three light jerks for 'gee.' It is usually best to back-furrow, beginning in the center of a land, turning 'haw.' A left-hand plow is in no sense an awkward tool. When the ground is hard and the weather hot, a 2-horse, or better, a 3-mule team can do a satisfactory day's work *when it is impracticable to run a 2-horse plow at all.* This, in preparing for wheat, will afford great relief in many cases. It is hard when work presses to stop the plow to wait for rain; all this and more has been expressed in the *American Agriculturist*, but it will bear occasional repetition—and it is especially valuable for the consideration of the owners of those teams that are compelled to drag a raw hand along in the slack of a line running to each horse."

Sumach.—G. H. Alford, Conn. The common species are the Smooth, the Staghorn, and the Mountain Sumachs. The leaves are considered equally valuable. They are collected when fully developed, usually in August, and if intended for market, are dried, ground, and bolted.

Petroleum for a Picket Fence.—"A. N.," Franklin, N. H., wishes to paint a picket fence with petroleum. He finds in market the "native oil," which sells at 50 cents per gallon, and "crude petroleum" that sells at 28 cents. It is the latter he should use. For hard wood, petroleum of a light specific gravity is best; but for pine and hemlock, and other soft woods that absorb the oil readily, a heavier petroleum may be more desirable. As to applying it, any way which gets it on with the least labor and in the largest quantity is best. We should go over the fence first with a whitewash brush, commencing on the top of the pickets, and letting the oil run down the wood. Then go over the fence again with a large, long-haired paint brush, and get on all the oil the wood will absorb.

Long Rows in the Garden.—Billings Hobart, West Va., writes: "Have found great economy of labor in laying out kitchen garden in long rows, about 2 to 2½ feet apart, putting a strip of potatoes at each end for a horse to turn on, and plowing everything; it saves three-fourths the labor, and produces finer vegetables. Those who think this arrangement don't work well, can apply the saved labor to ornamental grounds, and look at the whole result."—We have frequently advocated this method where land is plenty and labor dear, but it is not practicable in small gardens.

Cooking Peas in Milk.—"E. H. M.," Danbury, Conn., does not think Peas properly treated unless cooked as follows: "After shelling, rinse the peas, and place them in the pot with milk enough to boil them in, adding sufficient water—say one-quarter as much as milk—to prevent burning. Salt to the taste; stir occasionally while cooking to prevent the milk 'boiling over.' If a scum rises, which is not likely to occur if the milk is *new*, and cooked properly, skim off. When done, pour all into a deep dish, and add a generous lump of butter." Green Corn is also greatly improved by milk. The corn should be cut from the cob, and then cooked the same as peas. If it is desirable to eat with beans, the latter may be cooked in the usual way, and added to the corn after both are done. Milk requires less salt than water does.

The Value of Swamp Muck.—Muck differs in value, but when one has no choice, it is safe to act as if the material was of great value. The chief value lies in the organic matter, which contains more or less ammonia. In some 33 samples, Prof. Johnson found an average of 1¾ per cent, in the air-dried substance, which is more than double as much ammonia as is contained in very good barn-yard manure. Several pears contained 3 and one 3½ per cent. J. L. Faulkner, of Tioga Co., asks for "a simple formula for analyzing swamp muck." It would be impossible for a farmer without accurate chemical knowledge to do this, but an approximate estimate might be arrived at in regard to the ash and the amount of ammonia, thus: Dry some lumps as large as one's fist; burn them, see how much ash they leave, and its character—whether sandy and abundant, which is bad, or fine and little of it, which is good. When the lumps are burning, and as soon as they have done smoking and blazing, take out a coal of the size of a hen's egg or bigger, and hold near it a feather dipped in strong vinegar. The amount of white, cloudy smoke which curls about the feather, indicates the presence of ammonia, and thus when two or more samples are compared, the amount of ammonia may be guessed at. After all, the best test is the practical one; and generally, that peat, or muck is best, which decomposes and disappears quickest in the soil; and will probably show the most effect upon the crops.

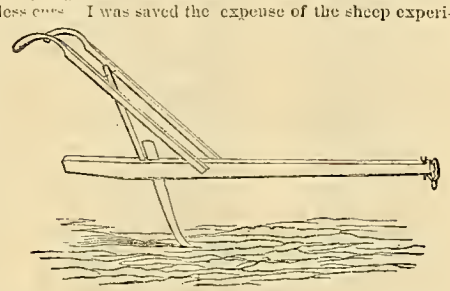
Spurrey.—J. M. McA., Summerville, Mich., writes: "I see Spurrey, Common and Giant, advertised in the Catalogues as a forage plant for cattle and sheep—What is it? Is it liable to become a nuisance on the farm? Is it worth cultivating? Would it do to plow under for

manure? and what is the season of sowing?"—Spurrey does well on sandy soils, in a warm moist climate—under such circumstances, sown in the spring, a heavy crop of forage or of green manure may be obtained. It does not at all stand well our hot, dry summers. They stop its growth almost immediately. Where it has been sown it is afterwards known as a road-side weed, but we believe it is never troublesome. It matures in three months or less, according to the richness of the soil and the climate. —The seeds are highly nutritious, and it may be fed to any kind of stock.

Sale of Mr. Sheldon's Farm.—We have received the following letter from Mr. Sheldon: GENEVA, N. Y., June 2, 1870. *My Dear Sir.*—In consequence of recent illness in my family, our physician advises us to travel for the next few years, and I have decided to offer my farm for sale. As you know all about it, you can well imagine the pain this decision has cost me, but my duty to my family seems imperative, and I must make the sacrifice. Very sincerely yours, JAMES O. SHELDON.——We deeply regret the necessity of this decision. We can ill afford to spare Mr. Sheldon from American agriculture. We need his example. We have always pointed to his career as a farmer and breeder with pride. We have admired his energy and "pluck." When he first "turned farmer" his city friends predicted that he would soon tire of it, and what is still harder to bear, his farmer neighbors seemed to have anticipated a similar result. And, as if to justify these disheartening opinions, he met at the commencement of his breeding career with many losses. Several of his most valued Shorthorn cows and calves died. His magnificent flock of South-Down sheep were kept in a separate barn in charge of a man who had a cow of his own in the building. One night the barn caught fire and the man ran to save his own cow and left the whole flock of South-Downs to perish in the flames. We presume Mr. S. owes his success to these losses. They did not discourage him. They were necessary, though a costly part of his agricultural education. They taught him care and caution, and with a due exercise of them, he seems to have had unbounded faith in himself and in improved breeding and farming. He has triumphed gloriously. When he purchased the farm it was remarkable for nothing, but the beauty of its situation, the grandeur of its trees, and the charm of the land scenery. The land, though naturally good, was poor and weedy. He drained it, cleared it, purchased large quantities of bran and other cattle food, made rich manure and applied it to his grass land until now he has one of the handsomest, richest, cleanest, and most productive farms in the State, with a large herd of cattle second to none in the world. It does seem as though we could not spare such a man. We can only hope that the farm will fall into the hands of some one who will still use it for rearing choice stock.

Perkins & House's Lamp.—A lamp for burning kerosene, made by Perkins & House, called the "Non-Explosive," has been used with much satisfaction by several persons connected with the office of the *Agriculturist*. The lamp is a metallic one and easily taken care of. The inventors claim, with good reason, that its construction renders explosion impossible. We attach but little importance to this, as oil which will explode should not be burned in any lamp. A large share of the accidents from unsafe oil do not occur from explosions within the lamp, but from carelessness in filling.—At all events, the lamp is a good one, vastly safer than any glass lamp, and when used with the best oil, gives a brilliant and pleasant light.

A Run-down Virginia Farm.—In "Walks and Talks" for June, some advice is given to one who has recently purchased an exhausted farm in Virginia. This has called out several letters, from one of which, by G. Child, we give the following extract: "First. Let him cut down the pines, and trim the brush off them, and put them in the gullies or washes—put the brush in first, and the poles or logs on top, to hold it down. Very soon, briars and grass will come up out of the bottom of the washes, and they and the brush will form a mass that will prevent more washing.....Second. To accumulate manure, let him hire a superannuated freedman—he can hire one for a little more than his board—and set him to piling up leaves and wood mold (that is, the top surface formed by rotting leaves), in his woodlands. When he has ten to twenty loads in a heap, throw dirt and rotten wood on it, to make it rot quick and thoroughly. If this is done in June, the manure will be fit to spread on the galled fields and plow in next fall for spring crops. It is the best cheap remedy I know of for exhausted clay lands. If his woodlands are all pine it won't do, as pine straw is of no account.....Third. To plow heavy bottom lands, set a sharp coulter in a beam, as in the engraving, and cut the sod into slices, the same width of the furrow of a two-horse plow. When you have gone around the land twice—that is, when you have cut off one slice, start the plow after the coulter, and turn the slice over, and the furrow, thus opened, will be a guide for the lead horse of the coulter to walk in, so that the man driving the coulter can cut his slice the same width every time. The coulter should go 10 to 12 inches in the ground, and it will take two horses to pull it if it is like the sod I had to deal with. The two-horse plow will find but little difficulty in turning over the slices after they are cut if it is a good Livingston or Clipper. ....Fourth. Sheep are the best thing to kill briars, but they kill everything else first. Then sheep won't do in Virginia, as there is no tax on dogs, and every vagabond owns and starves from two to ten worthless ones. I was saved the expense of the sheep experiment by the experience of a neighbor who, out of sixty, only saved five sheep—and he didn't save them—he ate them, to save the dogs the trouble. He killed and poisoned about twenty dogs, and got the ill-will of his worthless neighbors. I hope the New England gentleman will find his investment profitable, and I know he will be astonished at the recuperative power of the red clay and limestone lands of Virginia."



TURF CUTTER.

Books Acknowledged.

Independent First Reader. By A. Madison Watson. A. S. Barnes & Co. 25 cents.

Tomato Raising in Common Gardens. By Horace Taylor, Canandaigua, N. Y. A pamphlet of 16 pages. It gives the method of starting the plants, training, trimming, etc., and is especially adapted to the northern latitudes, where the tomato needs much care, in order to ripen it successfully. The suggestions given for training will, if followed, increase the quality of the fruit.

The History of Hortense, Daughter of Josephine, Queen of Holland, and Mother of Napoleon III. By John S. C. Abbott. N. Y.: Harper & Brothers.

The Household Treasury. Philadelphia: Claxton, Remsen & Haffelfinger. This is a neat book, into which various household recipes may be copied, classified under their proper heads, and indexed. Each division has a neat vignette, and appropriate motto.

The Vicar of Bullhampton. By Anthony Trollope. N. Y.: Harper & Brothers.

Missouri Agricultural Report for 1869. We have received from Mr. C. W. Murtfeldt, Secretary, the report of the Missouri State Board of Agriculture, which, besides the Secretary's report, contains essays, proceedings of societies, and the valuable report of the State Entomologist.

The American Tune Book. Boston: Oliver Ditson & Co. A collection of sacred music by five hundred editors. $1.50.

The Life of Bismarck. By John George Louis Hesekiel. Translated by Kenneth R. H. McKenzie. New York: Harper & Brothers.

Memoir of the Rev. John Scudder, M. D., Thirty-six years a Missionary in India. By Rev. J. B. Waterbury, D. D. New York: Harper & Brothers.

Conjugal Sins against the Laws of Life and Health. By A. K. Gardner, M. D. New York: J. S. Redfield.

Scuppernong Grape.—"Novice," Scott Co., Iowa. It will be of no more use for you to try to grow this grape than it would be to undertake to raise pineapples.

Conover's Colossal.—Mr. Abram Van Sicklen, of Jamaica, L. I., sent us a bunch of Conover's Colossal Asparagus, which contained twenty-five stalks and weighed six pounds.

Painting a Tree.—We published the desperate remedy, applied for bark louse, by Mr. D. A. Norris, of Greenville, Ct., and thinking his success was an exceptional one, remarked that we did not commend the practice. Mr. N. writes: "I will only say that the tree I painted, two years ago, has made a growth of four feet and three inches, with a diameter of three-fourths of an inch at the but; and it blossomed and set so full this spring that, unless at least three-fourths of the fruit drop off, I shall be obliged to thin it. Now, if any one can beat that in two years, on a sick tree, I should like to see the tree. Mine was a desperate case. I tried painting as a desperate experiment. I succeeded beyond my expectations. I know of no healthier looking nor thriftier tree than the one I painted, and I don't think any man can find a louse on it. I found some lice on another tree last year, and I painted that, and it is doing as well as the first one. I am perfectly satisfied with the experiment. That it has proved a success with me is acknowledged by all that have seen the trees."

The Handy-Book of Husbandry. By George E. Waring, Jr., of Ogden Farm, Draining Engineer, etc. New York: E. B. Treat & Co. Sold by subscription, at $3.50. As a rule, we have not noticed those agricultural works which are sold by subscription, for two reasons: 1st, the works sold as this is have generally been the merest trash, made to sell in this way by writers whose productions would never meet with a sale in the regular trade. 2d, the few subscription books that we have noticed have brought us numerous letters asking where they could be had, information which we were unable to give. In the present work both these objections are avoided. The book is a good one, and arrangements have been made by which such of our readers as choose to do so, may obtain it. Those who have read the "Ogden Farm Papers" do not need to be told that Col. Waring is a pleasant writer, as well as a thorough-going, practical farmer. In the present work he gives an outline of farm operations, commencing with buying or leasing a farm, and discussing farm building, drainage, manure, implements, animals, etc., and all in a clear and practical manner. A considerable space is given to the steam plow, as the author foresees that the time is soon at hand when a method of preparing the soil, so common in England, must be adopted here, where practicable. A very full set of useful tables adds much to the value of the work. The book is produced in good style, and we take pleasure in commending both its exterior and its contents as a marked exception to the agricultural works sold by subscription that have fallen under our notice.

Seventy-five Popular Flowers, and How to Cultivate Them. By Edward Sprague Rand, Jr. Boston: J. E. Tilton & Co. This work is mainly made up of articles which have appeared in Tilton's Journal, and which have been thought worthy of preservation in a book form. The author, in his preface, claims indulgence, or we should be disposed to criticise the carelessness which marks the botanical portions of the work. For the rest it is a clever guide to the cultivation of some of our most popular flowers.

Five Thousand a Year, and how I made it in Five Years' Time, Starting without Capital.—By Edward Mitchell, Loring, Boston. Books like this do an incalculable amount of mischief, as they present gardening operations in a way that no practical man ever found them, and lead men who have no knowledge of the subject into investments and enterprises which are very sure to end in disaster. We hope that this Mr. or Mrs. Gilman-Barnard-Mitchell will soon exhaust the subject, and "let us have peace."

In Stacking Hay or Grain, keep the middle of the stack very full all the time and thoroughly trodden down, so that the sides will settle more than the middle. Put some straw or long hay on the roof, and rake it down smooth. And do not be ashamed to put some poles on each side of the stack to keep it from settling to one side.

Agricultural and Horticultural Fairs for 1870.

We shall, as usual, prepare a list of Fairs, with the time and place they are to be held, and desire to have it as complete as possible. We will thank Secretaries and other officers of Societies to send us copies of Premium Lists or newspaper notices, announcing the time of the Fairs—or to write to us, giving the name of the Society or Club, the State, with the place where, and when the fair is to be, adding also the name of the Secretary or business manager. Our list of fairs to be held in July and August so far is quite a small one.

The Minnesota State Horticultural Society holds a fair at Minneapolis, in connection with the Hennepin Co. Horticultural Society, July 4th. There is to be a

Horse Show at Ellicottville, N. Y., July 4th and 5th.

The Carolina Horticultural Society makes a show at Wilmington, N. C., Aug. 11th, and in

Parks Co., Ind., there will be a fair at Bloomingdale, Aug. 24th to 26th, and one at Bridgeton 29th to Sept. 2d.

A House Costing $1,300 to $1,900.

In accordance with our previous purpose, as well as in response to a great number of requests, we present well studied plans for a low-priced house. These were drawn by Mr. S. B. Reed, Architect and builder at West Flushing, L. I., with several modifications suggested by Mr. Judd, who will, by way of practically testing them, erect a couple of these houses in Flushing during this summer. We give the wide range of $600, for the cost of the same house. Where materials and labor are comparatively cheap, and little attention is given to ornament, inside or out, a house of this plan and size may be erected for $1,300 to $1,400. With labor and materials at the prices named below, the cost, exclusive of land, would run all the way from $1,300 to $1,900, or even more—according as one, or more, or all of the following things be provided. (1) Superior brick cellar wall, 7 to 8 feet high.—(2) The hall and one *cellar* finished off with floor, lathing and plastering the walls and ceilings.—(3) Use of the best "Novelty" siding, of good pine 10-inch boards, 1 inch thick, with groove in the center of each board, the same as shown in fig. 6, page 89 of our March number.—(4) More brackets on the cornice, and dentals added; and heavier, more ornamental window caps, than are shown in the engravings.—(5) Fine moldings in the lower rooms, and some fair moldings, instead of plain casings, in the second story.—(6) Thick plaster with fine hard finish and heavy cornice moldings, and center pieces in the ceilings, in the first story.—(7) All the walls filled in with brick and mortar, or back plastered, that is, put lath and plaster midway between the siding and

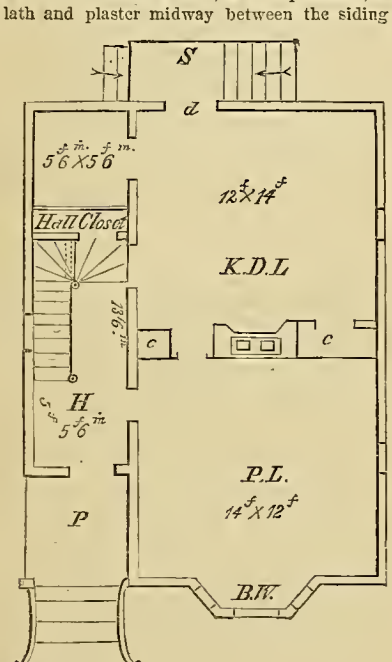


Fig. 3.—FIRST STORY—FLOOR PLAN.

inside lath and plastering.—(8) Water Tank over the hall stairs in the upper story.—(9) Range with water-back and upper boiler in *K D L*, fig. 3.—(10) Stationary Wash Tubs.—(11) Best quality of locks, with white porcelain knobs and plated shanks on all doors.—The addition of all these, or part of them, will add to the cost. After careful estimates of every part, in accordance with the below named prices, Mr. Judd is arranging to put up two houses in fair, comfortable style and convenience, stopping at just about $1,500 for the total cost, exclusive of land, but including cistern, fencing, privy, and, perhaps, a grape arbor. The 10-inch cellar wall will be of brick, with an air-space in the middle. The cellar to be built so as to be conveniently finished off if ever desired; Novelty siding; tin roof; moldings and cornice in first story, with center pieces; hard finished walls, etc., etc.—in short, a neat house, but without the extras. As will be seen, further on, the plan of the house, small as it is, admits of modifications, easily made, that will fit it for the wants of a large family. This is a noteworthy feature of this house. Put up cheaply at first, it can be extended at trifling expense and with very little "tearing up." The above-ground position of the basement renders the rooms in this quite light and cheerful.

Description.—Fig. 1 shows the **Front Elevation.** This gives a general view. The basement should be more above ground. As formerly explained, we believe in setting the first floor well up, so that the occupants shall always be as far above the ground as may be. For a basement 7 feet high, 2 to 2½ feet in the ground is deep enough, and 4½ to 5 feet above the ground—except in very cold regions where it is necessary to bank up the entire walls to keep frost out. A 10-inch wall, built hollow, or with air-space, will withstand pretty severe cold weather. The whole roof should be a few inches higher

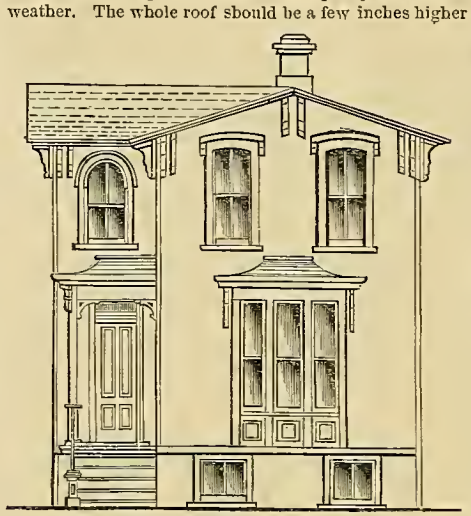


Fig. 1.—FRONT ELEVATION.

than shown, so as not to appear so close to the upper windows. The cornice should be a little heavier than shown. Make the brackets a little shorter and broader. It adds greatly to the good appearance of a house of this kind, to have the roof project at least 20 inches all around. The cost is but little more. We have seen many, otherwise fine, dwellings deprived of all beauty by "sticking on" a very narrow and light cornice.

Fig. 2—Cellar or Basement.—(7 feet high in the clear.) The plan shows a division that may be made; but when great economy is studied these interior divisions may be omitted—until wanted. One or more chimney flues should start in the cellar for stove pipes there, if ever needed. An outside door and steps are shown at *C*. If the future wants and circumstances of the family require, *B* may be finished off for a Kitchen, with a dumb-waiter through the floor. *A*, may be fitted up as a Dining-room. In this case a small Cellar might be excavated under the piazza. We believe Mr. Judd intends to make the Cellar of the full size, piazza included. It will be seen that no more wall, and but little more digging, will be required. The girder will need supporting with locust posts, or brick piers, if the cellar division be not made at first.

Fig. 3—First Story.—(9 feet high in the clear.) The general arrangement is shown by the engraving. The piazza, *P*, may be lessened, if desired, and more room thrown into the hall, *H*, and into the room *I*, in fig. 4. The parlor, (*PL*), used somewhat as a living or sitting room, is of convenient size. A mantle-piece may or may not be added. An economical arrangement is to lead the stove pipe from *KDL*, through the wall into a drum in *PL*, and then turn it back into the chimney. This will keep the front room warm. The drum should have a small fire chamber in it for using wood during some of the coldest days. The closets or pantries, *cc*, should be made pretty deep to give plenty of room in them.—*KDL* is used for a kitchen, a dining-room, and partly as a living room. The back stoop, *S*, may be a simple

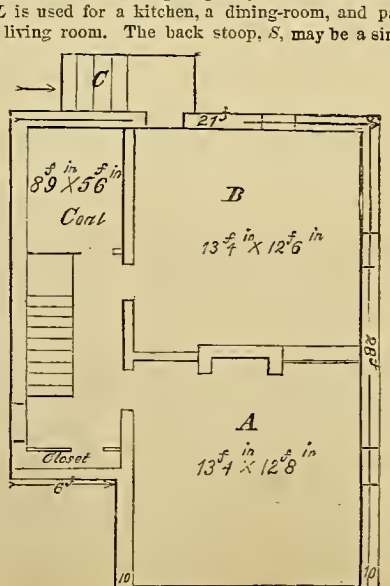


Fig. 2.—THE CELLAR OR BASEMENT—FLOOR PLAN.

platform with railing, or be covered in. *H*, may be lighted by a sash over the front door, and partly from the window over the open stairway in the second story. The window against the stairs at the left of *H* may be simply a blind one for the good appearance of the outside. A Pantry, 5½ feet square, is provided at the rear of the hall. The stairs to the cellar are in the hall *H*, under the other stairs. They should be wide enough for convenient descent to *A*, if that should ever be used as a Dining-room.

Fig. 4.—Second Story.—(8 feet high in the clear.) It will be seen that there are four sleeping rooms, *F*, *R*, *S*, and *I*, all large enough for a full-sized bed, except *I*, which will take in a ¾ bed. *F* and *R* may be heated by stoves, the pipes entering the chimney flues. *I*, may have a door also into *F*, if it is desired for a young or sick child. By having the door into the hall, *I*, may be kept as a "spare room," if the family require the other three sleeping rooms. We have slept comfortably in a "spare room," no larger than this, in many pretty well-to-do farmers' dwellings. Or *R*, or *S*, may either of them be used as the spare room. We don't believe in the frequent practice of living or sleeping *constantly* in a small room, and reserving the largest and best room for *occasional* visitors. That is sacrificing comfort and health to show. If friends, stopping for a night, or a few nights, cannot put up with such rooms and conveniences as may be readily furnished, their friendship is not worth a great deal. [And in this connection we will throw in our standing protest against the custom of giving up one's whole time to worry and excitement over getting up extra fine food for visitors—just as if *they* had no such things at home, and had come away to find "something good to eat." If *we* go to see our friends, it is to visit with *them*, and not with their larder. We do not want a hasty occasional word with them, while they are flying about to

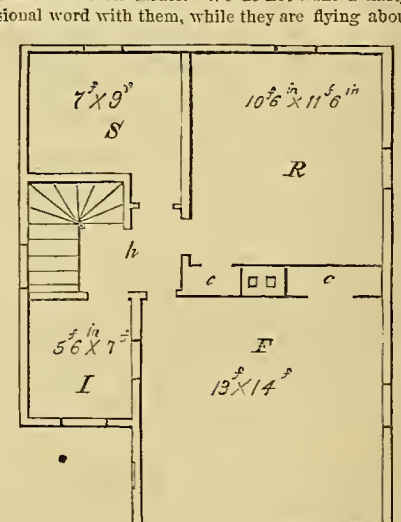


Fig. 4.—SECOND STORY—FLOOR PLAN.

feast our appetites. We prefer they should cook less than usual—give us plain, simple food, enough to satisfy the natural demands—and give us some of their *time* and attention for visiting. The venerable Bishop Hedding once called upon a good lady of our acquaintance awhile before noon. She was all excited, because no good preparations were made for dinner. "Sister," said he, "I have but three hours to stay, and I want to visit with you and your husband. You have good bread and milk; let us eat that, and *all* have the rest of the time to talk together"—and it was done. The writer happened to be one of the quartette, and we had a "feast of reason and flow of soul," such as a fashionable hotel table seldom supplies. The same principle applies to the general household arrangements for entertaining guests, especially where the house is small and means limited.]

Mr. Judd has another plan nearly perfected, for a house costing from $2,000 to $3,000, exclusive of land, which he is preparing to build the present season. It is designed to contain many conveniences, plumbing, etc. The plans of this will be described next month, probably.

Prices.—The following prices are used as the basis of calculation the present summer, here. The variations under the same items, refer to quality. Thus, while the best carpenters may receive $3 or more, per day, others less experienced, and less expert, will be dearer at $2 a day. There must be always some apprentices learning, at low wages, while they can do some kinds of work as well as full men. The same remark applies to other workmen.—*Wages* per day of 10 hours: Carpenters, $2.00@3.50; Masons, $3.50@$4.00; Laborers, $1.50@$1.75; Painters, $2.50@$3.50; Grainers, $4.00@$5.00; Roofers, $3.00@$4.00; Slaters, $3.50@$4.50.—Timber and Lumber per 1000 feet board measure: Timber, (beams, posts, etc.) $22.50; Siding, planed, $34@$40; Flooring, $32@$36; Joists, $18@$20; Clear Pine, $50@$55; Hemlock Boards,

$16@$20: Lath per 100, 28c.@33c.; Doors, 7x2½ ft.x1¼ inches, $2.50@$3.00; Doors, 7×2¾ft.×1¼ inches, molded on both sides, $3.50@$4.00.—Hardware: Nails, $4.50@$4.75 per 100 lbs.; Ventilators, $1.10@$1.60; Porcelain knobs with plated shanks, per doz. $4.50@$5.00; Porcelain knobs, japanned shanks, per doz. $1.75@$2.00; Locks, per doz. $4@$6.00; Tin for roofing, etc., good charcoal, per 100 feet, $8.50@$9.50; Slating, good, laid with double felting, per 100 feet, $12.50@$13.50. Gas piping per foot, put in, 14c. Brick, per 1,000, hard, $7@$8; soft, $6.50@$7. Lath and Plastering per yard, two-coat work, 30c.@35c.; do., hard finish, 40c.@50c. Blinds per foot, (unpainted), 37½c.@40c. Sash, (glazed, 2d quality French glass, and primed), $3.50@$4 for above houses. Sash weights per 100 lbs., $2.75@$3. Sash cord per lb., best, 30c.@35c. We intend to give a talk on the kinds, qualities, etc., of the above articles, with hints on selection, or best kinds to use.

Scattered Grain on Stubbles.—Notwithstanding the excellence of our steel-toothed rakes there is considerable scattered grain and heads left on our wheat, barley, and oat stubbles. The former is usually seeded down with clover, and as there is no necessity for plowing them, the wheat stubbles may be reserved until the last. But where barley or oat stubbles are to be sown with wheat, we can better afford to lose the scattered grain than to postpone working the land. Sheep will glean the stubbles as well as pigs, but they should not, at first, be allowed to remain in the field more than half an hour the first day and perhaps an hour the second, lengthening the time as they have to travel farther in search of the grain. And see to it that the sheep have free access to water, and are regularly salted.

Whitewash.—The following is sent out by the Light-house Board of the Treasury Department: "The following recipe for whitewashing has been found by experience to answer on wood, brick, and stone, nearly as well as oil paint, and is much cheaper....Slake half a bushel of unslaked lime with boiling water, keeping it covered during the process. Strain it and add a peck of salt, dissolved in warm water; three pounds of ground rice put in boiling water, and boiled to a thin paste; half a pound of powdered Spanish whiting, and a pound of clear glue, dissolved in warm water; mix these well together, and let the mixture stand for several days. Keep the wash thus prepared in a kettle or portable furnace, and when used put it on as hot as possible, with painters' or whitewash brushes."

Cement-Wash.—The following are the directions of the Light-house Board: "Take of fresh Rosendale cement three parts, clear sand one part, and mix them thoroughly with fresh water. This will give a gray or granite color, dark or light, according to the color of the cement. If a brick color is desired, add enough Venetian red to the mixture to produce that color. The cement, sand, and coloring matter must be mixed together. If white is desired, the walls, when new, should receive two coats of cement-wash, and then whitewash. After the work has received the first coat, a single coat every three or four years will be sufficient. It is best to thoroughly dampen the wall with clean, fresh water, and follow immediately after with the cement-wash. This course will prevent the bricks from absorbing the water from the wash too quickly, and will give time for the cement to set. Care must be taken to keep all the ingredients of the cement-wash well stirred during the application of it. The mixture must be made as thick as it can be conveniently put on with a whitewash brush."

Trout Breeding.—About the first of June we had the pleasure of visiting the trout ponds and breeding race of Mr. William H. Furman, of Maspeth, Queens County, Long Island, to witness the results of some novel and valuable experiments in raising trout. Mr. Furman practised for several years the "artificial method" of obtaining eggs from trout, fertilizing them, and hatching them under daily inspection and more or less handling. This was so essentially *artificial* and so repugnant to his feelings, that for several years he has devoted time and money in conducting experiments with a view to have the eggs laid and hatched in a perfectly natural way, and at the same time to obtain the highest good results as to the health of the fry and the number hatched. He has put in use a race with a floor of slats; and upon the slats a layer of gravel of the size preferred by the fish for spawning ground. The water is admitted from a powerful spring "piped" to the spot, (and from other springs in the bottom,) beneath the floor of slats, and wells up with great uniformity through the entire mass of gravel, so that everywhere there is an upward rising, yet very gentle, current. This race is 200 feet in length, varying from 4 to 8 feet in width; the water standing from 12 to 18 inches deep over the gravel, and having a very perceptible flow at the outlet where the race is widest. Below the race is the nursery, a low building, 100 feet in length by 10 in width, made of rough boards, and entirely occupied by the water-course and a narrow walk. From the nursery the water flows through "the brook," a boarded, roofed, and gravelled channel, 500 feet long, to its outlet into the main pond. This is a beautiful sheet of the purest water, long and narrow, doubling upon itself, and filled with breeding trout, some of which are of very large size. The parent trout seek the race of their own accord and make hardly any nests in this beautifully clean and well-prepared bed, but lay indiscriminately anywhere. The eggs disappear among the gravel, and are not touched. The old fish return to the pond, and, after the laying season, are shut off. This spring, after the hatchlings could take care of themselves pretty well, the gravel was all overhauled to look for dead eggs, etc, and it was found so clean and so few dead eggs were there, that Mr. F. says he shall not disturb the bed another year. The race is roofed its entire length, the roof being movable, and not entirely excluding the light. It is located near salt marshes, and, occasionally, eels are seen on wet nights following up surface ditches in close proximity to the race; hence, in order to exclude these and anything else that might harm the fry, wire screens are nailed across the sections of the race at exposed points. The feeding of the fry takes place at certain spots in the race, and here the largest quantity of excrement accumulates. The upward flowing water makes it easy to collect and remove this, but the fry are chiefly fed in the nursery. The number of fry this year exceeded the capacity of the race and feeding-house; and so previous to our visit Mr. F. had opened the connections with the main pond and let the fry go freely out and in. This had somewhat reduced their numbers, but the majority still kept near the feeding places, and wherever we looked the water seemed alive with them. Mr. F. is fortunate in being able to obtain the roe of the horsefoot, or king-crab, in abundance, and an unlimited supply of beautiful, fat maggots of the flesh-fly. Many of this year's fry were over 3 inches, and some, we judge, 4 inches in length, and had a remarkably lively, healthy look. We saw very few dead ones. This race is patented; but as we deem it desirable that several should be in operation, Mr. F. authorizes us to say he will make very liberal terms to those who will put them up in time for use this year. The fish begin to enter the race about October 1st. We cannot but regard Mr. Furman's results as exceedingly important and successful. He simply protects eggs, laid in a natural way, from all natural enemies; at least that is the aim. This plan differs from the Ainsworth race inasmuch as that involves a removal of the eggs, which fall though the coarse gravel and wire screen upon a set of movable screens below, and are subject to more or less manipulation and other than natural surroundings during the hatching period.

Harvesting Barley.

When the straw is long enough, the best way to harvest barley is to bind it up as we do wheat. But, good crops of barley this season will be few and far between. Much of it will be too short to bind, and some of it will be so poor that it will be difficult even to cut it with a reaper. It will have to be cradled or mown with a scythe. It is discouraging work—but there is no remedy except in better farming. Barley requires to be cut just at the right time. If cut too early, the grain shrivels up, and if it is allowed to stand a few days too long, it "crinkles down" and the heads drop off in reaping and are lost. We know of no better test than to squeeze the grain between the thumb and finger, and if there is the least appearance of milk, the crop should be allowed to stand longer. The real difficulty, however, is in the uneven ripeness of the crop. Some portions will be dead ripe, while others are still green, and it requires considerable experience and a sound judgment to decide whether we shall lose most by cutting before it is all ripe, or by letting a portion of it get so ripe that there is danger of the heads falling off. Much depends on the weather. If we could be sure of curing the crop without exposing it to rain or heavy dews, we would cut early, because what is lost in the grain is made up in the increased value of the straw for fodder. But as barley that is stained in harvesting or in the mow will not bring as much by 10c. or 15c. per bushel as a bright sample, it is usually better to shorten the period of curing as much as possible by allowing it to stand until pretty ripe. In this as in many other farming operations we must calculate our chances, and not be discouraged if we sometimes miss the mark. When barley is clean and the weather favorable, there is perhaps no better,—certainly no cheaper,—way of curing it, than to allow it to remain in the gavels as thrown off from the platform of the reaper. They may be turned or stirred to facilitate the drying, but otherwise may remain as left by the reaper until ready to draw in. By moving one or two swaths to make room for the team, two men with barley forks can pick up the gavels of three or four swaths on each side of the wagon, and place them on the load. In this way scarcely any of the barley will be scattered on the land.

But if there are weeds or grass in the barley, or the weather is threatening, it will be necessary to turn the gavels, and towards night put them into small cocks, which will have to be turned or opened the next day and recocked again at evening, if not sufficiently cured to draw in. It should be borne in mind that barley is very frequently stained in the stack or mow, from being drawn in too soon, or with dew on it. Barley should be either thrashed as drawn from the field, or not until it has done "sweating" in the stack or mow. If the former, it will be necessary to watch the grain in the bin and turn it occasionally, or it will heat and become discolored. The rakings should be kept separate, as the grain is frequently stained, and if mixed with the rest may reduce the price of the whole several cents per bushel. Better feed them out to the pigs.

Bee Notes.—*By M. Quinby.*

The Aplary in July.—Boxes should never remain on after they are full. The bees soon soil the combs, and it is more important that the comb should be clean, than that every cell next to the glass should be sealed up. If there are more boxes on a hive than will be likely to be finished, remove some or all, if you can, to stronger stocks to be completed. It may be necessary to change them from hive to hive several times. One finished box is worth two unfinished ones. Never let bees lie outside of the hive for want of room in the boxes. Put on a second tier of boxes if the strength of the stock will warrant it, by making holes in the top of the lower ones; those partly full may be raised, and empty ones put under. This, perhaps, is the best way. In movable comb-hives, when all the boxes the hive will accommodate have been put on and there are bees still unemployed, take out some full combs—alternate combs, if more than one are to be removed—and put empty ones in their places. Full combs with brood may be given to weak stocks—having brushed off the bees, of course. In this way stocks may be made strong and valuable, which would otherwise be worthless. Stocks often overswarm and become too weak to protect the combs. If they cannot be strengthened, break up the hives and secure the honey and wax before the worms destroy them and a swarm of moths is bred. If queens are not raised artificially, it is well to hive a small swarm or two, and thus keep queens for supplying those that become destitute. Flags do not prove to be as good a material for hives as straw. Secure straw now from the harvest field. Select by handfuls, make even, shake out short ones, cut off heads, and put away to make hives with on some rainy day in December.

About Queens.—B. F. Rosenberry, Alliance, Ohio, writes: "On the 8th of April a small swarm of bees issued from one of my colonies, flew around awhile and went back again. Seven days after, they swarmed again, and we hived them in a hive with a few frames and some honey. They are doing well and breeding, both the old and new. Where were the two queens all winter? as a new queen could not have been raised as early as the 15th of April."—It is not at all strange to have new queens as early as the middle of April, (I have known them hatched in midwinter,) and allowing this, it is not difficult to answer his question. As queens grow old, they frequently become feeble, barren, or lay only drone eggs, and it is common for the bees to prepare queen cells to supersede them, and in such cases the young queen usually destroys the old one. I should infer that in this instance there was an intention to supersede the old queen, but she was yet strong enough to resent it and led out the first issue; but she being lost, the bees returned to the hive. When the young queens began to hatch, another swarm issued as in the swarming season, and if the old queen had become a drone-layer, there would be drones to secure the fertilization of the new queens thus early in the season.

Ants and Bees.—D. S. Landis, Litiz, Pa., writes for advice as to the best method of keeping ants and worms away from beehives. The prevalent idea is that these are often the *cause* of weakness and thriftlessness in a colony, whereas they will only be found in a hive when it is already weakened from other causes. Keep your colonies in *good condition*, and there will never be room inside a hive for a strong family of bees and a nest of ants, or a brood of worms. Ants will sometimes gather on the top or near a strong hive for the sake of warmth they find there, but not within it. Ants and vermin generally will disturb a hive of bees only when it is too weak to repel them; just as debility of the human system renders it defenceless against the attacks of acute diseases, which a strong constitution would resist successfully.

Poisons and their Antidotes.

BY OUR FAMILY PHYSICIAN.

[Even with the greatest carefulness, accidental poisoning will often occur. Children are much inclined to try bottles and parcels, before they are able to read the labels. Nearly every poison has its antidote, which will prove effective *if used at once;* loss of life often results from a delay of but a minute or two. A recent case of accidental poisoning, under our own observation, where a knowledge of chemistry, applied on the instant, averted much suffering, if not death itself, suggested the preparation of an article on this subject for the *American Agriculturist*, which should place against each poison some remedy available in almost every household, and Dr. M. R. Vedder, of Flushing, N. Y., has kindly prepared the following, and we have revised and arranged it, with much care. Let it be carefully preserved where it can always be instantly referred to. Note well the closing remarks.]

Arsenic. **Fly Powder,** ("Cobalt." **King's Yellow.** **Scheele's Green.** **Ratsbane.**	Stir 2 tablespoonfuls of ground **Mustard** in a quart of **lukewarm water,** and drink until copious vomiting is produced, tickling the throat with the finger or a feather. After vomiting, give large quantities of Calcined Magnesia.
LEAD POISONS. **Sugar of Lead.** **White Lead.** **Litharge.**	First, **Mustard** to vomit, as above, and doses of **Epsom Salts,** say a teaspoonful to a tablespoonful, according to the age of the patient, every half-hour for two hours.
MERCURIAL POISONS. **Corrosive Sublimate,** or (Bed-Bug Poison.) **White Precipitate** **Red Precipitate.** **Vermilion.**	**White of Eggs**—or Milk, or Wheat Flour—beaten up.—Administer all that can be got down in ten minutes, and then give mustard emetic as above.
COPPER POISONS. **Blue Vitriol.** **Verdigris.** **Food or Pickles Cooked in Copper or Brass Vessels.**	**White of Eggs,** or Milk taken very freely for ten minutes, to be followed with an emetic of Mustard as above.
IRON POISONS. **Copperas,** or **Green Vitriol.**	**Cooking Soda,** a teaspoonful to a tablespoonful, or more—according to age of patient, etc. — followed by plenty of Gum-Arabic water, or Flaxseed tea or Slippery-Elm tea.
ANTIMONY. **Tartar Emetic.**	**Powdered Nutgalls,** a teaspoonful or more in water; or tea of Oak bark or Peruvian bark. Give promptly.
SILVER. **Lunar Caustic.**	**Table Salt,** 2 teaspoonfuls or more, in a pint of water.
ZINC. **White Vitriol.**	**Warm water** to *relieve* vomiting; and 1 to 2 teaspoonfuls of **Baking Soda,** followed by Milk or White of Eggs.
PHOSPHORUS. **Matches.** **Rat Exterminator.**	**Mustard** and **Warm Water** to cause vomiting; then large draughts of water containing **Calcined Magnesia,** 2 tablespoonfuls to a pint, followed with **Flaxseed tea,** or Slippery-Elm tea.
ACIDS. **Acetic Acid.** **Citric Acid.** **Muriatic Acid.** **Tartaric Acid.**	**Baking Soda, or Saleratus, Lime,** or **Magnesia,** (a teaspoonful to a tablespoonful) dissolved in water and used freely. Powdered lime mortar from ceiling will do.
Oxalic Acid. **Nitric Acid.**	**Magnesia or White Chalk** or **Lime** stirred in water, drank freely and *quickly.*
Sulphuric Acid, (Oil of Vitriol.)	Drink much water quickly, and follow immediately with large doses of **Magnesia,** or Powdered White Chalk or Lime; or if these are not at hand, use Soda, or dissolved Soap. Follow with plenty of Flaxseed or Slippery-Elm tea.*
Prussic Acid. **Oil of Bitter Almonds.** **Laurel Water.**	Teaspoonful of **Hartshorn,** (aqua ammonia), in a pint of water. Drink the whole at once.
ALKALIES. **Pearlash.** **Salts of Tartar.** **Soap Lye.**	Drink freely of **Vinegar** in water, followed with Gum-Arabic dissolved in water, or Slippery-Elm tea, or Flaxseed tea.
Ammonia. **Hartshorn.** **Potash.** **Muck Soda.**	Drink freely of **Vinegar** in water, or Lemon Juice, or Citric, or Tartaric Acid mixed with water. Sweet Oil, Castor Oil, Linseed Oil, or Cream, is also good, and should follow the other remedies above named—a tablespoonful first, and then a teaspoonful an hour for three hours.
ALCOHOL. **Any Spirituous Liquor.**	Two tablespoonfuls of **Mustard** in a quart of warm water. Drink till patient vomits freely, using a finger, or feather.
VOLATILE OILS. **Creasote.** **Carbolic Acid.** **Oil of Tar.** **Oil of Turpentine.** **Oil of Tobacco.** **Fusel-Oil.**	**White of Eggs,** or Milk, in quantity, followed quickly by a Mustard emetic.
MISCELLANEOUS. **Charcoal Fumes.** **Street Gas.**	**Fresh Air,** and artificial respiration.
Iodine.	**Starch,** or Wheat Flour beat up in water. Vomit with mustard and warm water.
Saltpetre. **Nitrate of Soda.**	**Mustard Emetic,** followed with Oil as for Ammonia.
VEGETABLE POISONS. **Strychnine.** **Nux-vomica.** **Opium.** **Laudanum.** **Paregoric.** **Morphine.** **Stramonium,** (or Thorn Apple, or Stink Weed). **Belladonna,** (or Deadly Night Shade.) **Croton Oil.** **Foxglove.** **Squirting Cucumber.** **Aconite,** (Monkshood) **Hemlock.** **Hyoscyamus or Henbane.**	**Emetic of Mustard** and warm water, as above; drink till patient vomits freely.—Tickle the throat with finger or a feather; or give a teaspoonful of powdered alum; or five grains of tartar emetic; or 20 grains (half a thimbleful,) of white vitriol, dissolved in half a tumbler of warm water, every ten minutes, till vomiting is produced. If the patient is drowsy, give the strongest cold coffee, or slap smartly on the back, and walk, or use electricity to keep him awake.
Arnica.	**Vinegar** and water.
Mushrooms.	**Emetic of Mustard** and warm water, until vomiting is produced; then frequent small doses of Epsom Salts.
Poisonous Fish.	**Emetic of Mustard** and warm water, tickling the throat.
BITES, ETC. **Serpents.** **Insects.** **Mad Dog.** **Poisoned wounds from Dead Animals.**	Tie a **String tightly above** the **Wound;** some one having no sores, broken skin, or exposed nerves in the mouth, suck out the blood, and wash with hot water, so as to make it bleed as much as possible; then wash with hartshorn, and burn out with a large red-hot wire or pointed Lunar Caustic; after this remove the string, & poultice with flaxseed.

We have endeavored to give those antidotes which are most likely to be at hand in every family, and can be readily administered by any one, but in all cases of poisoning, send for the family physician at once. It may be necessary to use the stomach-pump. The after treatment, to prevent or subdue inflammation, should be followed out with great care.

In poisoning by Arsenic, the *hydrated peroxide of iron* is an invaluable antidote, but as a physician would be required to administer this antidote, we have omitted it.

* [We have taken the liberty to change the usual directions for "Oil of Vitriol," which say, "use as little water or other liquids as possible." We should drink water very freely at once, to dilute the acid as much as possible. The heat produced by uniting sulphuric acid with water, will occur in any case, by the natural fluids in the stomach. No more heat will be produced by the large quantity of water, but the heat will be so diffused in the larger amount as to destroy its effects.—O. J.]

Trapping the Curculio.—Mr. Wm. B. Ransom, of St. Joseph, Mich, was so successful in trapping the curculio that he made his method known, and the local paper at once issued an Extra which was sent abroad in order to allow a trial of the plan the present season. The method is to level the soil around each tree and make it perfectly smooth for a distance of 2½ feet from the trunk, leaving no place in which a curculio can hide. Pieces of bark, shingle, or other material, that will serve as a shelter for the insect, are laid upon the ground close to the tree. The curculio will conceal itself under these and is caught and destroyed. The chips are turned over every day, and the insects killed. Dr. Hull, of Alton, Ill., of "curculio-catcher" fame, visited Mr. Ransom and spent several days in examining his operation. He gives an account of his observations in the Prairie Farmer. Though at first inclined to think Mr. Ransom's traps a complete success, Dr. H. found that, as the weather became warmer, fewer insects were caught under them, and upon examining the trees, enough curculios were found upon them to destroy the crop of fruit. It appears that this plan is not likely to supersede that of jarring the trees and catching the insects upon sheets or upon a "curculio-catcher," and how far it may prove an auxiliary has yet to be determined. At all events, Mr. Ransom deserves great credit for the promptness with which he made known a method which promised to be useful to fruit-growers.

Horse Papers for Farmers.—No. 6.

"A good master is half the horse." It is of no use to raise good colts if they are not to be so treated as to become, and to remain, good horses. The domesticated horse is a highly artificial production. By taking advantage of certain natural tendencies in the race, man has (during long centuries) so changed the original form and character of the animal as to produce large size, great beauty, docility, strength, endurance, economical assimilation of food, and ability and willingness to perform severe labor.

The same power that built up must be employed to maintain. A herd of the best thoroughbreds turned loose in an uninhabited country, would, in a few generations, lose size, shape, strength, docility, and nearly all valuable qualities. The rapidity of the degeneration would depend on the abundance of the natural food, the constancy of its supply, and the vigor of the climate. There is a constant antagonism between the natural tendency to deteriorate under neglect, and the tendency to improve under artificial management. In proportion as we follow the practice that long experience has shown to conduce to improvement, shall we increase—or at least continue—the more valuable qualities. In proportion as we allow nature to have unguided sway, shall we permit these to be lost. Simple abundance of food at all seasons will be very much in our favor, but this is, by no means, all that is necessary. We must see to it that the abundant food is administered with regularity; that it is the right kind of food; that pure drinking water be regularly supplied; that the atmosphere in which the horse lives is wholesome; that he be not subjected to too great exposure to the inclemeney of the weather; and that he have sufficient and regular exercise. Young colts, during their second, third, and fourth summers, cannot be better provided for than by being placed on dry pasture, where the grass is

good, and where the water is plenty and wholesome. They should not, however, be left out at night until settled warm weather, nor should they be allowed to depend entirely on the grass after it has been much frozen in the fall. The fresh air and water, and the nutritious grass, coupled with the free life of the field, will supply all the conditions for the best growth and development during the early summers of the animal's life.

In the winter time, it is absolutely necessary to satisfactory development that the best hay and good water be supplied, and that sufficient opportunity for exercise be given. Extra food and extra care will pay, in the long run.

Now, bearing in mind the foregoing statements and the principles laid down in the previous papers of this series, let us see how the average farmer manages his horse breeding affairs. He buys (if he does not already own) a half-broken-down mare, with, perhaps, foundered feet, spavined hocks, and "touched" wind; and then he blunders about the country to find a cheap stallion. If there is a fine blooded horse standing at $50, and a "lunkhead" at $5, he always begins by saving $45, and congratulating himself on his shrewdness. After the mare is stinted he puts her at work in the team and makes her "earn her living" by working hard, ten hours a day, and picking up most of her feed at night from a poor pasture. In winter she generally has hay given her in the most wasteful way, and is kept in a dark and unventilated stable, unless the owner believes in "hardening." In this case she may spend most of the time,—wet or dry, warm or cold,—in an exposed yard with a sheep rack or a stack to feed from. If there is a more active horse on the place it is used, because pleasanter to drive, for the daily trip to the store or to town; and the old mare mopes away her time in idleness. In the spring she is, fortunately, set at work,—fortunately, because hard work is better than no exercise,—and is kept at it, without extra feed, until she foals. Then, after a few days, she is geared up again; and on her long jaunts to town, as well as about her farm work, the youngster travels about with her and takes her milk when he wants it, without much reference to the condition of the mare, whether she is overheated or not. The colt is as nearly a wild animal as the offspring of domesticated parents can be until he is haltered for his weaning in the fall. After this operation is completed he takes his chances with the calves and yearling stock in the barn-yard in winter, and in the pasture in summer. If he is stabled in winter, he is usually deprived of necessary exercise; and he comes to a late maturity a poor stick of a horse, with constitutional defects that condemn him to a low sphere of usefulness, and that probably occasion his sale to a horse railroad company at six years of age, when he has cost $200, and is sold for $150. If he happen by any accident to be good looking, and to have a promising trotting gait, his owner—blind to his imperfections,—raises him for a stallion; and he may, during the rest of his life, transmit his ancestral spavins, and founders, and broken wind, to a new race of miserable brutes, at from $3 to $5 ahead.

This is a simple and unexaggerated account of the way in which America is supplied with its horses. This no-system is as bad as bad can be, and it amply accounts for the fact that (except in very rare cases) really good horses are not to be had at any price, and that pretty good ones sell for almost fabulous prices. As a rule, every horse that is raised according to the above description, costs the breeder more than he sells for, and he is worth to the purchaser less than his price. It is a losing business from beginning to end, and is a disgrace to all who are connected with it. The fault rests with the farmers, who fail to see that the only safe rule in horse-raising, as in everything else connected with their business, is *to do the very best that is within their power.*

A really good horse—one that is sound in all respects, that looks well, travels well, and works well—is worth more than he costs, from the day he is foaled until his days of usefulness are over. A thoroughly wretched horse is not worth when foaled the pittance paid for stallion fee; is not worth when broken, the fodder he has eaten; and is not worth when sold, the half-price that he fetches.

Every man who undertakes to raise a colt should set out with the determination that it shall be worth when four years old, at least twice the average price of the horses of his neighborhood; and he should at every step,—from conception to training,—allow nothing to be omitted that can add to the animal's value. Of course this way costs more,—a good deal more,—than the hap-hazard way of doing the thing; but every cent that is judiciously spent in adding to the intrinsic value of a colt, is well invested, and will come back with interest when he is sold; while every cent that is scrimped out of the poor brute's ancestry, food, and attendance, is finally lost in his depreciated value, whether for sale or for use.

That the foregoing opinions may not be considered to be without foundation, the following calculation of the cost of raising colts on the two different systems is given. It is assumed that animals may be pastured during six months of the year, and must be housed and fed during the remaining six; also that in either case, a poor mare will earn, while she is bearing and suckling her foal, the actual cost of her poor keep; and that a good mare will, during the same time, pay for her more nutritious food and better attendance. It is further assumed (and the facts will always sustain the assumption) that the better bred and better fed animal will be as fully developed at the age of four years, as the poorer one at five.

Cost of breeding and rearing a common horse to the age of five years: Service of stallion, $5; keep on hay first winter, $15; pasture first summer, $10; second winter, $18; second summer, $15; third winter, $24; third summer, $20; fourth winter, $30; fourth summer, $20; fifth winter, $33; risk, $10. Total, $200.

Cost of raising a half-thorough-bred horse on good keep, to the age of four years: Service of stallion, $50; keep, first winter (2 qts. oats daily), $24; pasture, first summer, $15; second winter ($2\frac{1}{2}$ qts. oats), $30; second summer, $18; third winter (3 qts. oats), $36; third summer, $24; fourth winter (4 qts. oats), $48; risk, $20. Total, $265.

It is much more likely that the better animal will be worth $400 than that the poorer one will be worth $150. At these prices there would be a loss of $50 in the one case, and a profit of $135 in the other. In the case of the cheaper animal there is hardly a ghost of a chance of fancy value. It is essentially, by birth and education, a common dung-hill brute, and can only be sold for the commonest uses.

The half-thorough-bred, if the sire and dam have been well selected, is almost certain to be very valuable, and the chances are very great that either its beauty or its speed will give it a high fancy value, which it has no defects to lessen. If any breeder finds fault with my estimates, he may make others to suit himself; but I challenge him to make any showing, based on the actual cost of production and on reasonable probabilities of value, that will not show a loss with bad breeding, and a profit with good breeding. If the conditions are changed and the common colt is fed as well as his more aristocratic competitor, of course the difference between them will be lessened; but turn and twist the circumstances as we may, the advantage will always lie with good breeding and good feeding combined.

Ogden Farm Papers—No. 7.

I have seen this year an advantage in planting corn in drills. The corn land had been just got ready for planting among most of my neighbors and had been marked out both ways (some of it partly planted), when there came a very heavy and long-continued rain, which made it necessary to postpone work for several days for the land to dry. To plant a field in this condition would give the weed seeds too much advantage over the corn, so it had to be harrowed and marked out again. Fortunately the weather was good this time, but another heavy storm might have postponed planting for another week and caused still additional work. As I planted in drills and had no cross-markings to make, it was not necessary to wait for the whole field to be prepared before marking out. As soon as we had one or two lands plowed, they were harrowed at once and were immediately planted with a horse corn planter, which seems to have done its work perfectly well. Where corn has to be planted by hand, the extra labor of the drill system is a serious objection; but when the seed can be put in as fast as a horse can walk along the row, it is even cheaper than hill-planting by hand.

I am not yet certain whether I shall be able to avoid the expensive hand-hoeing that last season's drill crop required. When the cultivator can be run but one way, the cleaning of the rows by hand makes a serious addition to the cost. I have tried, this spring, the new smoothing harrow, which has 120 small steel teeth sloping backward at a considerable angle. For breaking up small clods and for putting in grass seed, it is better than a brush; and from what I have seen of its operation among weeds two or three inches high, I am inclined to credit its inventor's statement, that it can be run over corn, after the leaf has spread, and be run repeatedly until the corn is a foot high, without injuring it. Acting on my faith, I shall commence using it as soon as the weeds begin to show themselves, and shall go broadcast over the field once a week until it is obviously doing harm to the corn; going once lengthwise and the next time across the rows. As it takes a width of 9 feet, I can scratch over the $9\frac{1}{2}$-acre field in half a day. This will, certainly, very much reduce the amount of hand-labor, and I *hope* that it will obviate its necessity entirely, so long as the harrow can be used. After this, we shall go through once with the cultivator and shall probably have to give one hand-hoeing. As the process is an untried one, I have planted about twice as much seed as will be needed, and at the hand-hoeing the superabundant plants will be cut out. I thought it safest to have plants enough to allow for injury by the harrow, as a little extra seed will be of trifling cost com-

pared with two hand-hoeings. This is an experiment made on faith, and its result will be reported in due time.

We commenced cutting green rye, and feeding it to the cows on the 5th of May, mixing it at first with hay, to accustom the animals gradually to the change. The proportion of hay was daily reduced until, on the 12th, none was given; and we are now giving the cows all the green fodder they can eat, with a decided effect on the quantity of milk. At the first cutting the rye was not more than one foot high. It is now (May 16th) nearly double that and very heavy, but has not commenced to head out. Before we shall have finished the field, say ten days hence, the last cutting will probably be four feet high and fully "jointed." This portion will hardly grow again until late in the season; but that first cut is already starting vigorously and promises to be ready for the scythe again by the time it is needed, and I hope to have clover ready to cut early in June. The clover will be followed by oats which are now up and looking well, and these should carry us through until the sowed corn is large enough.

I already see a decided advantage from the spreading of sea-weed on one-half of my clover field. That portion did not seem to be much less affected by winter-killing than the other; but the growth is much more luxuriant, and will pay for the excessive cost of the dressing.

I wish that I had Brother Bunker's talent for conveying important truths in a homely and effective way. He has the very kernel of good farming in his "old hat."—"We want to learn what the Deacon never has learned, how to spend judiciously as well as to save; how to invest capital in the soil and make it pay ten per cent." Whatever falls short of this is not farming, but earth-skimming.

Last spring I planted about half a peck of Jerusalem Artichoke (*Helianthus tuberosus*). The seed was cut into small sets and planted in rows 3 feet apart on rich land. They were hoed once during the season, but otherwise required no attention. This spring we dug over 20 bushels—and fed enough to the stock to see that they eat it greedily. The balance of the seed will be planted for a crop this year, and the yield cannot fail to be very large, probably more than could be obtained from any other root with the same amount of labor,—1,500 bushels per acre not being unusual. An analysis of this root shows it to be about equal to potatoes, bushel for bushel; while the fact, that it remains uninjured in the ground all winter and can easily be dug in the spring, is a strong argument in favor of its use. The drawback, and it is a serious one, lies in the difficulty of clean digging. It is next to impossible to remove all of the small tubers, some of which are not larger than a pea, and any one of which is good for a strong plant the second year. They occupy the whole ground, and, after the most careful digging, there is quite sure to be enough left to start another crop. As this plant grows well year after year on the same ground, it is only necessary to devote a certain space permanently to it. If I ever have occasion to use the Artichoke patch for any other purpose, I shall put up a temporary fence and keep a few hogs on the ground, trusting that they will root out the last vestige of the crop.

I have heard that the stalks of the Artichoke are excellent for soiling, but have never had occasion to try them. If left until winter, they become quite woody and are worth something for fuel. I think, however, that it is not necessary to resort to these secondary uses to find a reason for growing the crop. The immense amount of highly nutritious food that it yields, at a season of the year when it is difficult to have turnips or mangels in good condition, and its superiority to these in nutritive value, are sufficient to commend it to all stock farmers.

An Illinois subscriber makes the just criticism on one of my articles that I have told how to prepare butter for market, but have not told how it should be made. I am not a scientific butter-maker; that is, I have no thermometer, and allow a good deal of rule-of-thumb work. The cardinal rules, that my good German dairywoman follows instinctively, are scrupulous cleanliness and constant care as to the condition of the milk and cream. In winter the milk-pails, when brought from the barn, are set into vessels of boiling water and kept there until the milk begins to "crinkle" at the top. It is then strained into very shallow pans on shelves in a warm closet in the house. When the cream has separated and before the milk becomes sour, (the time being more or less according to the weather, usually 30 hours,) it is skimmed with a common tin skimmer, and the cream is kept in a cool place. We churn twice a week. The churn is scalded, and if the weather is very cold, the cream is kept in a warm room for a few hours before churning. The night before churning, a teaspoonful of the dry extract of annatto for each two gallons of cream is covered with half a pint of boiling water and left to stand on the back of the stove until morning, when it is strained into the churn. We use a rotary churn and have it worked by two men; relieving each other at short intervals, so that the churning may be uninterrupted and steady. The butter usually comes in about half an hour. In summer the milk is set in an outer room constructed for the purpose, which has a cemented floor kept constantly wet. It is well ventilated and has a window to the north only. In the center of the room the skimming table stands, and all the sides are supplied with shelves at intervals of 7 inches, from the floor to the ceiling. Each shelf consists of two square sticks of 1½-inch stuff, supported by brackets from the sides. These sticks rest, corner up, in notches sawn into the brackets, but they are nailed fast. The whole of this wood-work is thoroughly painted; and at frequent intervals the sticks are taken down, washed, and stood in the sun, the brackets being scrubbed out at the same time. From the position of the shelf sticks, the pans rest on their corners. If the shelves were made of boards or slats, or if even the present sticks were laid on their sides, more or less of the bottom of the pan would be shut off from the circulation of the air, and would probably cool less rapidly, or at least less uniformly than by the present arrangement, which exposes the whole bottom of the pan to the air.

The milk is strained into these pans directly from the milking pails. The walls of the milk-room are frequently whitewashed. The door is kept closed and the window kept protected by a mosquito bar. If possible, the cream is taken off before the milk commences to sour. In the warmest weather the milk stands only 12 hours. In moderate weather 24 hours. The cream is kept in a large tin can and hung in the well, and it keeps perfectly sweet until churning time. In summer, of course, no annatto is used, as the natural summer color of Jersey butter is all that could be desired. The churning is done in the same manner as in winter, and as the cream is taken directly from the well at a low temperature, the time required for churning is about the same. After the butter has been gathered by the dasher, the plug at the bottom of the churn is withdrawn and the buttermilk is drawn off. Then the plug is replaced and a little cold water is thrown in, and the butter is slightly washed by turning the dasher. This operation is repeated a second time. The butter is now taken from the churn and worked in the manner described in No. 4 of these papers. The amount of salt used is not weighed, but it is very little indeed; not more than a fifth part of what is usual, not enough to impart much keeping quality to the butter. We deliver to private customers once a week in winter and twice a week in summer, and the butter is probably always kept in refrigerators. Under these circumstances salt is not needed as a preservative, and those who are accustomed to its absence have a distaste for it.

If there is one thing more important than all others in its influence on the quality of butter, it is to hunt out the last drop of buttermilk or moisture from the mass. The smallest perceptible amount of either buttermilk or water, will take away from the desirable waxy appearance from the outset, and will affect the taste after the first day.

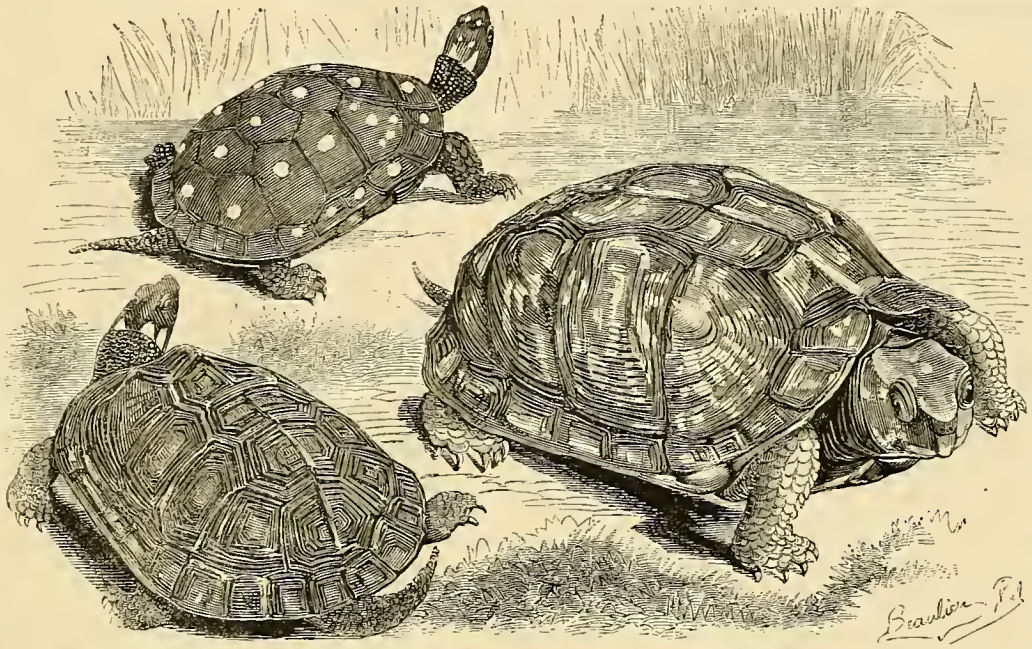
Titus Oaks' Lactometer.

Titus Oaks, Esq., is rather a quaint old farmer of Westchester Co., who, though he made his money in New York, has never weaned himself from country life. He manages a large farm, with all old-fashioned convenient surroundings, has his choice dairy, his fine yokes of oxen, and a blacksmith shop, to remind him of his New-England home, and the employment of his youth and of his ancestors. He has been experimenting more or less for several years upon the richness of the milk of different cows, and of the same cow at different periods, and many of his results have been very interesting. He has found the most convenient Lactometer—or cream-measurer, which any one has made, to be one of his own invention. He buys uniformly cylindrical glass tubes, three-quarters of an inch to an inch in diameter, with good, thick walls. The dealer will cut them in lengths of a foot. It is well to have the ends "sealed," that is, heated in a spirit lamp or fire until the glass begins to soften at the edge. They must be gradually heated and gradually cooled, or they will crack. Corks are fitted tightly to one end, and a mark on the outside is made with a pen at just 10 inches from the end of the cork within the tube. This tube is set upright in a little rack, in an old lamp globe or any such thing, filled with milk, warm from the cow, and allowed to stand 24 hours. The cream will rise, and may be measured. If one uses a rule divided into inches and tenths, each tenth of an inch will show one per cent of cream; an inch will, of course, show ten per cent. When the tube is to be cleaned, the cork is withdrawn, and a stream of water poured through. The results given by this instrument are very accurate. The engraving represents the tube filled with milk, the cream having risen.

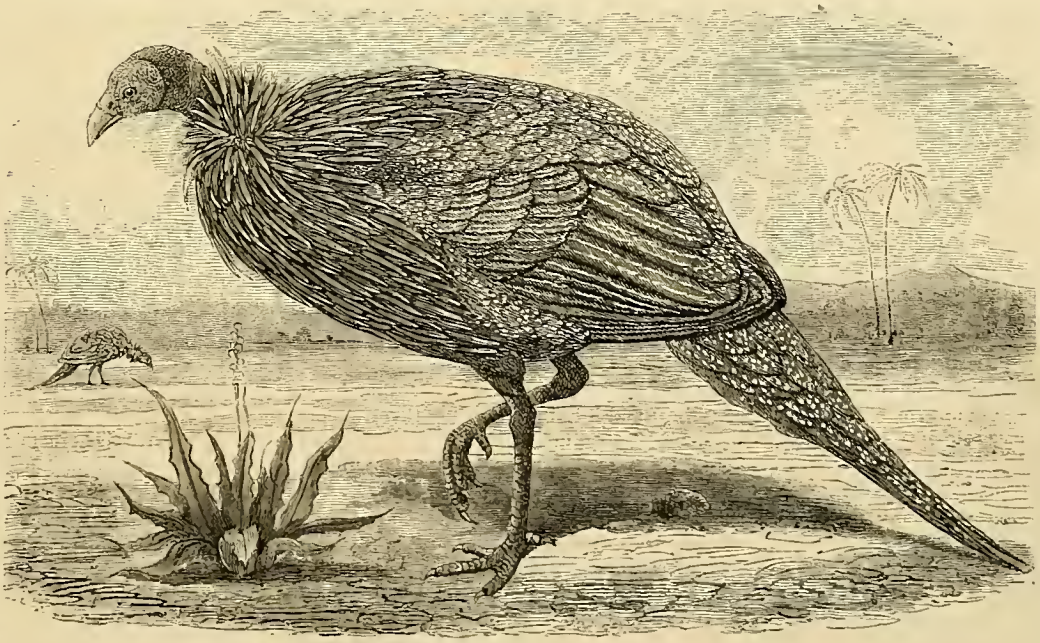
Our Common Tortoises or Turtles.

The structure of the turtles presents many interesting points. Externally they seem so unlike other vertebrate animals that it is difficult to see how they are classed with them. An inspection of the interior shows distinctly that the spinal column is present; the portions of it belonging to the neck and tail being movable, while the intermediate vertebræ, together with the ribs, are expanded and soldered together in such a way as to form the upper shell of the animal. The under shell, which is in part the breast-bone or sternum, is joined to the upper at each side. Our streams and woods afford several species, the most common of which is the Spotted or Speckled Turtle(*Nanemys guttata*), which is readily distinguished by the yellow and orange dots upon its black shell. In the young the dots are upon the marginal plates only; but in the older ones the spots are on all parts of the back and present great variety in their size and distribution. The convexity of the shell varies considerably. It is probably the best known species, and may often be seen basking in the sun upon rocks or logs close to the water, from which they slip with remarkable rapidity when one approaches. They feed upon insects, frogs, and worms. When full grown the shell measures 4 or 5 inches in length. The young ones, an inch or two long, make amusing pets for the aquarium. Another very common species, and a most interesting one, is the Box Turtle (*Cistudo Virginica*), which is found upon dry land throughout the Atlantic States, and in some of the Western ones. The color is usually a dull brown, and marked with yellowish stripes and splashes; but some have been found entirely black. The plastron, or lower shell, is divided transversely into two unequal parts, which move upon the same axis and enable the animal to entirely conceal its head, tail, and legs. This peculiarity is recognized in the common name. This species is frequently kept in yards in a state of domestication, and it seems to be little disposed to wander. It conceals itself, by burrowing late in September, and reappears in spring. It feeds on insects and vegetables.

Muhlenberg's Tortoise (*Calemys Muhlenbergii*), found in New Jersey and Pennsylvania, and sparingly in New York, is a terrestrial species, $3\frac{1}{2}$ or 4 inches long, with a marked keel or ridge upon its upper shell, and the plates of the shell neatly marked by ridges and furrows. It is readily distinguished by a large, orange blotch upon each side of its neck. In popular language these animals are all called turtles. Some writers restrict this name to those species which are found in the sea, and call all the others tortoises. The name tortoise is believed to be a corruption of the Spanish *tortuga*, and that of turtle, which originally belonged to the dove, is supposed to have been derisively applied by sailors to the sea-tortoise.



MUHLENBERG'S TORTOISE. SPOTTED TORTOISE. BOX TORTOISE.



THE VULTURINE GUINEA-FOWL.

The Vulturine Guinea-Fowl.

A bird which promises to be an acceptable addition to our list of domestic fowls has just now an interest for a large number of persons. We give an engraving of a species of Guinea-fowl, which has recently attracted the attention of the naturalists and poultry fanciers of England—the Vulturine Guinea-fowl. The specimen arrived at the London Zoological Gardens from Africa via the Suez Canal. It is said to be common upon the east coast of Africa near the Equator, and though used there as an article of food, it has heretofore only been known in England by a single museum specimen. It is described as "peculiar in having the head and greater part of the neck devoid of feathers, and without any caruncles, and in the possession of long ornamental hackles surrounding the base of the neck and breast." The description gives no idea of the size of the bird, nor does it state the color. We are informed that arrangements have been made for a supply of the birds, and before long we may be able to learn something more of its history and habits. Those who have eaten the wild bird in Africa, speak of its good qualities as a table fowl. If capable of domestication, it may prove to be valuable.

Curing Hay in the Cock.—We are not only in the habit of cutting our grass too late, but we give it too much sun, in our haste to finish the job in one day. This course may save labor, but it loses nourishment. It is not very much more laborious to cure hay in the cock. Cut the grass after the dew is off, and let it lie until the middle of the afternoon, and then bunch it in the usual way. Let it remain in this condition until the third day. Then shake up the cocks a little with a fork, bringing the bottom to the top, and let it remain until the next day. If it storms the hay will not harm much to lie over. If it is good weather, give it an hour or two of sun, and put in the barn. This course saves much of the labor of tedding and turning. There is but one raking, and the quality of the hay is very much better than the sun-dried and hastily cured article. All the sweetness and aroma of the grass are retained; and the cattle eat it with a higher relish, and thrive better upon it. If one is furnished with hay caps there is very little risk in curing hay in this way. The capped cocks might stay in the field a week without harm. A farmer may use his hay-tedder quite too much for the good of his fodder.

Walks and Talks on the Farm—No. 79.

Mr. James H. Ball writes: "I wish you would interest yourself for the benefit of the folks that stand between the plow handles, and try to induce the Collins Co. to wood some of their plows with long handles. Any one that considers the matter, will see that greater length of lever gives the plowman more control over his plow, and enables him to hold it steadier and easier for himself. Eight inches additional length to ordinary plow handles would make a decided difference in this respect."—I suppose plow manufacturers would be perfectly willing to make the handles any length that is most generally approved by farmers. Let farmers decide what they want, and the manufacturers will soon furnish it. I have a long-handled, Scotch plow, but have never had a man who liked to use it. My men all prefer the short handles—probably because they are accustomed to them. A good plow ought to run without much holding. Long handles are necessary when plowing without wheels, as they do in Scotland; but it seems to have been proven that a plow with wheels runs easier, as a rule, than one without wheels. In England, the plows are furnished with two wheels, one that runs on the unplowed land, and a larger one that runs in the furrow. The former regulates the depth, and the latter the width of furrow. On smooth land, free from stones, such plows do nice work. But on stony land they would be useless. One wheel, for regulating the depth, is all that is needed. The width must be regulated by the clevis and by the handles. With a right-hand plow, if it runs a little too wide, we bear on the left handle, and if too narrow, we bear a little on the right handle. This is not hard work, and there is no necessity for long handles. With a lever, what we gain in power we lose in time; and the length of the handles of a plow must be determined by reference to the character of the work. It is not improbable that our handles are too short; but for use on my farm, I am satisfied that plows with handles as long as those used in England, would be inconvenient. On the smooth prairies of the West, I should think long handles would be desirable.

Mr. B. also thinks that the ends of the handles held in the hand are bent too much on a circle, and that they have a proclivity for getting into one's pocket, etc. He thinks a slight depression only from the horizontal line is much the easier for the hand. In this I quite agree with him.

Mr. Handy, of Canton, Mississippi, a spirited breeder of improved pigs, writes me that a disease has broken out in his herd, and during the past month, he has lost 40 fine pigs, and also some grown sows and large shoats. In the case of the sucking pigs, "the sickness first appeared with a sort of 'thumps' or heaving of the sides. In other cases, diarrhea has ensued. Some have troublesome coughs, while others have no outward manifestations of disease, except extreme inertia, and loss of appetite, amounting to total abstinence from food for a long time—no cough, no diarrhea, no heaving of the sides. Those attacked in this way have generally been full-grown hogs. Their eyes are frequently affected—in some cases entirely destroyed. What is the matter?"—In Ireland, for the last few years, swine have been affected with a disease which Prof. Ferguson, in his Report to the British Government, in 1867, says "partakes markedly of the character of malignant scarlatina and typhus of the human subject; not alone in its symptoms during life, but also in the appearance presented after death by the different organs and tissues, excepting that in this pig disease the fatal termination occurs as quickly as from half an hour to forty-eight hours, after the first apparent accession of the malady; and the apoplectic congestions and effusions are more frequent in this pig malady than in either of the above human diseases. In the suddenly fatal cases, on post-mortem examination, there are almost invariably found apoplectic effusions of, and within, the brain and spinal cord....In many cases a pustular eruption appears about the feet, affecting the animal so painfully that it cannot stand; the bowels are generally exceedingly costive and difficult to move by medicine; but in some cases there is diarrhea in the early stages: *such cases seldom die suddenly*, but when opened after death, the air passages of the lungs are found filled with a mucus, which during life had caused severe coughing. Seventy-five per cent is below the average mortality of this disease. Unlike measles, it is found to attack with the greatest frequency and severity pigs that are kept together in great numbers, particularly when confined in sties after being collected together from different parts for fattening. It seldom makes its appearance idiopathically among pigs that are allowed to go at large."

Were such a disease to break out among my pigs, I would instantly isolate those affected, and put the others into as many different lots as possible. A clover or grass field, in which there was a running stream, would be perhaps the best possible place. Scatter a little corn for them on the grass, changing the place frequently. Give all the salt, ashes, superphosphate or charcoal they will eat. Try to avoid costiveness, and this will prevent scours. Scalded bran, with a little linseed oil-cake, will be found excellent for this purpose. All the piggeries and pens should be thoroughly cleaned out and disinfected. Scald the troughs, whitewash the walls, paint all the wood-work, floor planks, troughs, etc., with petroleum. Sprinkle carbolic acid, or if this cannot be obtained, chloride of lime, about the premises. Use dry earth freely. The old litter from the pens where the pigs had slept I would either burn or bury.

If similar means were employed *before* any disease appears, we should hear of fewer cases of hog cholera. Diseases of pigs seem to be greatly on the increase, showing that there is something defective about our treatment. As to what medicines to give a sick pig, I should consult a physician; avoiding all quack nostrums, and depending principally on cleanliness and a change of food, with injections of warm water.

I never had my pigs do so well as they have this spring; and it is due to feeding them steamed potatoes. I fed out several hundred bushels of my own, and also bought from my neighbors, paying 15 cents a bushel for them. It would be a fortunate thing for the health of our pigs if potatoes were always as cheap as they have been this spring. And at any rate, instead of feeding out our small potatoes in large quantities in the fall, would it not be better to put them in the cellar, and feed them out in small quantities daily in the spring? At the ordinary price of potatoes, we cannot afford to feed them out as *food*, but we can afford to give a few daily as a *tonic*. The error we make is in feeding out all our refuse potatoes in a few weeks to fattening pigs in the fall, and having none left for the breeding and store pigs during the rest of the year.

Several farmers have asked me what potatoes are worth to feed, as compared with Indian corn. It is a difficult question to answer, for the reason that we must take the digestibility of the food and the health of the stock into consideration. Indian corn contains 57 per cent of starch, gum, and sugar, and 5 per cent of oil, equivalent to 12½ per cent. of starch, say, altogether nearly 70 per cent of starch or its equivalent. Potatoes, on the other hand, contain about 22 per cent of starch or its equivalent.—The corn, too, contains about four times as much nitrogenous matter as the potatoes. We may safely assume, therefore, that 100 lbs. of corn contains more than three times as much nutriment as 100 lbs. of potatoes. But it does not follow from this that corn is always worth three times as much to feed out as potatoes. At the West, where cattle have an unlimited supply of corn, a good deal of it passes through the animals whole; and still more, probably, only partially digested. Now roots, or any other food that would correct this, would have a greater value than the mere nutriment they contain.—Then again, it is exceedingly desirable to induce growing and fattening animals to eat all the food they can turn into flesh and fat. Roots and corn together are better than either alone.

There is nothing more important to the breeder of improved stock, and in fact to every one who fattens animals, than to so feed and manage them that they will eat, digest, and assimilate a large quantity of food, and at the same time, especially in the case of breeding-stock, retain perfect health. I find that my sheep, when turned out to pasture in the spring, although they have abundance of grass and clover, will still eat considerable clover hay when brought into the yards at night. And the lambs, no matter how much milk and grass they have, will continue to eat a few sliced mangels or parsnips, and a little bran or oats. And no one who studies the growth of animals, will suppose that the value of this extra food can be measured by the nutriment which it contains. The hay which the sheep eat when on succulent grass is of as much use to them as a few roots would be when the sheep have nothing but hay.

John Johnston writes me that, when he commenced farming, over 40 years ago, "the first three cows he bought cost him $10 each. They were good ones and large. Now, in the same neighborhood, cows are selling for $75 to $120 each. I believe," he adds, "cattle and sheep will keep their price for some years. If it was not for Illinois, I do not see what New York City would do for beef. That State furnishes from two-thirds to three-fourths of all the beef cattle in the market. For instance, last week, out of a total of 6,711, Illinois furnished 5,282. If there was a Vanderbilt to buy up all the Illinois cattle, he might control the market for years to come." There is probably no danger of anything of the kind being attempted. But it is time more attention was directed to the rearing, breeding, and fattening of cattle and sheep. The truth is, that our population increases with marvelous rapidity. And we are, as a rule, a nation of hard workers. Our resources are unbounded, and there is probably no people that work so hard and live so well as the Americans. An English farm laborer gets 50 cents a day and boards himself. Neither he nor his family can afford to eat beef or mutton.—The same man here would work harder and earn his dollar and a quarter or dollar and a half a day, would require a more liberal diet, and be enabled to get it. So may it always be. But that it may be so, the American farmer should endeavor to raise more, and better, beef and

mutton. I do not want to see meat any cheaper; but I do want, both for our own interests, and those of the consumer, to furnish meat of the best quality. Cheap as our mutton often is, it is the dearest meat in the market. Thousands and tens of thousands of sheep are sold that do not dress over 35 lbs. From 50 to 60 per cent of the meat consists of water. How much of the remainder consists of good digestible meat, and how much of bones, skin, and tough indigestible muscle, has not yet been determined.—But it is a pretty large proportion. We may urge people to eat less pork and more mutton, but it will do no good unless we provide mutton that approximates more closely to pork in actual nutriment. We ought to be able to produce a pound of mutton that shall contain as much available nitrogen and carbon as a pound of pork, and at less cost. This should be the aim of our breeders and feeders. When this is the case, we shall be a mutton-eating instead of a pork-eating people. Our mutton must contain less water and more (invisible) fat. It must be grown more rapidly, and fatted while the sheep or lamb is growing. I believe that the time will come when we shall have sheep that can make as much fat and flesh out of a given amount of real food as a pig. At present, our best mutton breeds, such as the Cotswold, Leicester, and South-Down, will not approximate to a pig in this respect—and the fact is not creditable to our intelligence and skill as breeders. Let us turn our attention to this subject.

Several fields of winter wheat have been plowed up in this neighborhood. Trouble, "winter-kill," which is only another name for water-kill, or want of draining. Many other fields are badly spotted. We attribute it to the snow, or the frost, or the wind, or the rain, or the sun. But if you would listen thoughtfully, you would hear the dying wheat on every one of these bare spots calling "tiles, tiles." By and by we shall have a drouth, and our clay land will be gaping with cracks, and we shall be praying for rain. I believe we should pray with more faith if we put in more drains. I am tired hearing men complain of the climate. If they would work more and grumble less, the seasons would be more favorable. "But we have not the capital to drain, and if we had, we cannot get men to do the work."—When you quarreled with your neighbor about the division-fence, you found money to pay the lawyers. And you spent more time and money to establish a claim to a few square rods of land that will not pay you a dollar a year, than would have drained ten acres of land. And that ten acres would have given you more real *profit* than you now get, after deducting the orchard, from your whole farm of seventy-five acres. I could easily show this to be an absolute fact.

The Doctor has gone on a trip to California, and is delighted with the people and the country. The soil is the richest he has ever seen, the people the most generous and warm-hearted, and the scenery the finest in the world. In the Napa Valley he was told "that 110 bushels of wheat had been raised there on one acre of land." "Another gentleman of unquestionable veracity," he writes, "told me that he had harvested, from three acres of wheat, 308 bushels." "But," he adds, "you never saw such farming. They plow only two or three inches deep, and crop the land with wheat year after year, for from 10 to 20 years. The consequence is, their land has become foul, and now they do not average more than 20 bushels per acre. What is needed to renovate the land is a rotation of crops and deeper plowing. Our clover will not answer, it dies out during the long, dry season.—They have a weed which they call clover, but it has not been used to any extent to fertilize the soil. In years back, wheat has been so high in price, that farmers have raised it almost exclusively. They even buy their vegetables and meat. In many cases they have what is called a 'volunteer crop;' i. e., the wheat which shells during harvest germinates, and often produces a fair crop. In some cases they will harrow grass land and sow wheat, and get a tolerable crop."

Sheep are kept in great numbers, and this is the most profitable branch of farming in California. A man with a few hundred dollars, who is willing to withdraw from society, can soon get rich by keeping sheep. They feed on the hills and valleys, and no provision is needed for the winter. "I dare not report," he says, "what several poor men are now worth who went into this business a few years ago."

A farmer in Canada writes: "I have 5 acres of hop-yard, and the crops of 1868 and 1869 are lying unsold in Liverpool. Shall I keep on raising hops or not? What is the best kind of broom-corn to grow in Canada?"—I can answer neither question. As a rule I would advise a farmer not to embark in any branch of farming that he does not understand, simply because for the time being it happens to be very profitable. But if I went into it, I would stick to it. Of all men, a farmer should not "make haste to be rich." I should have little faith in the ultimate success of a farmer who is always going into new things. To tell the truth, however, it is seldom the farmer's fault. Some of his city friends say, "Why don't you go into hops? So and So made $5,000 last year from his hop-yard. You can't make money raising corn and potatoes." Then they ask, "Why don't you raise broom-corn?—You can make more money from 5 acres than you now make from your whole farm?" Then it is Poland oats, or Essex pigs, or Cotswold sheep, or anything that happens to be popular and profitable for the time being. Such men are a nuisance. They make farmers and their families dissatisfied with the profits of ordinary farming.

The Deacon says if he does not beat me with corn this year, he will furnish the turkey for Thanksgiving. Last year I beat him badly; but this year he has planted on the best land on the farm, a two-year old clover sod, plowed with three horses and a jointer plow just before planting. Mine is *drilled* in on land plowed twice last fall, and merely cultivated this spring with a four-horse cultivator that Mr. Carhart made for me. The Deacon will do his best to prove that planting in hills is better than drilling. I think he will beat me this year, because he has the best land, but I will keep the cultivator going, and if he cultivates no more than he usually does, I shall hope to get the turkey. I have great faith in stirring the soil, and suffering nothing to grow but the corn. I have one of Howe's two-horse cultivators, that cultivates two rows at a time, and I mean to let a man spend as many days in the field as the Deacon does in his with a single cultivator. At this season an extra horse does not cost much. In a dry season an extra cultivating is almost as good as a shower, and one or two thistles will pump as much water out of the soil as a hill of corn. If the Deacon will only let the grass and thistles grow, and we have a dry, hot season, the extra cultivating will make up for the difference in the land—and at any rate the next crop will be the better for it, and the clover the following year, will show the effect. It takes more than one crop to test the advantages of a system of cultivation.

The Grass Pond Cranberry Bog—2d Art.

[*The first article was given in May, page* 178.]

Partial Flowing in Summer is another of the heresies detected at Grass Pond. The common practice in the cultivated bogs is to draw off the water until it stands in the ditches, a foot or 18 inches below the surface. This has been tried, and does not work well here. The water is kept quite high in the canal, and the aim is to keep the roots of the plants constantly moist. We noticed as we walked over the plantation that the moss was moist, but not saturated. The bottoms of the boots were damp, but the feet were dry. It is claimed for this practice, that it complies with the natural conditions of the plant, and is essential to its greatest fruitfulness. We have certainly never seen so large a tract so thickly covered with berries.

More Draining Needed. — We noticed that the best berries, the most of them, and the most highly colored were those which grew immediately upon the banks of the side drains. Even the hillocks left by the ditcher were completely overgrown with the vines; and heavily laden. These ditches were 200 feet apart, and the water stood in them perhaps 6 inches from the surface. There was, we should judge, a third more fruit on any square rod next the drain, than on any square rod farthest from it. It would certainly pay, then, to put in the side drains 50 feet apart, instead of 200. The expense would be paid in the increased yield of a single crop.

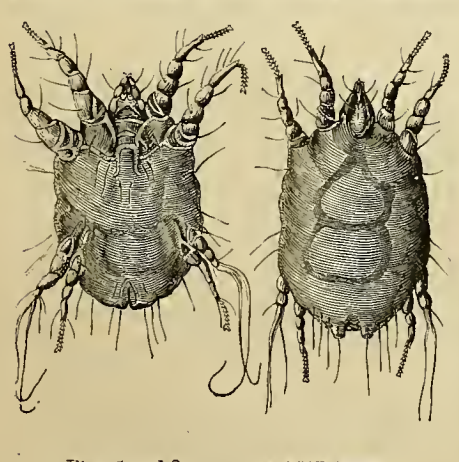
Picking the Berries is done by women and children, who flock in from the surrounding region, as fast as they are wanted. The proprietors have never been obliged to send away for this kind of help. It takes about 200 pickers to do up the work seasonably, beginning early in September. The pickers are arranged in a row on the edge of the vines. There is one overseer to 25 pickers, whose business it is to see that the ground is marked out, and that the vines are picked clean. He has stakes furnished with a line to each about 2 rods long, with an iron ring at the end weighing about a pound. He sticks his stake at the edge, and throws his ring the length of the string into the vines. 3 feet from the first he sticks another stake, and throws off the second string parallel to the first. This makes a plot of ground about 3 feet by 33, upon which the first picker enters and remains until it is cleaned. Each picker is served in the same way. She has one or more two-bushel baskets labeled with her name, into which the fruit is poured as fast as gathered. The baskets are transported to the packing-house by boat, or on carts, and there the picker is credited with the number of quarts found in her basket. The picker receives one and a half cents a quart. A smart picker will make $2.00 a day and upwards.

The Curing and Packing-House. — The Company are now erecting a large building 25 × 100 feet, for the purpose of curing and storing the crop. It occupies the site of an old saw-mill, and the lower story is below the level of the ground upon three sides. It is made of heavy timber, and has a capacity to store three thousand or more, barrels. The curing process, though often neglected, is a matter of great importance to the middle men, who transport, store, and market the crop. The berries take

on a finer color and keep much longer. The curing box, or tray, is 8 feet long by 4 wide, and about 3 inches deep. The bottom is made of common laths about an inch in width, with spaces not quite a quarter of an inch between. These boxes are filled with cranberries and piled one above the other in the curing, with a space of two inches between, where ventilation is provided. The sun must not shine upon them. They are cured in from four to six weeks. They are then put into barrels, and are ready for market. The part of the house designed for storage is made nearly frost proof, so that the crop can be kept on hand until prices suit. This is a much better arrangement for curing and storing this fruit than we have seen in any other quarter. The Grass Pond brand is already well known in the market, and has deserved a high reputation. The remaining 600 acres will soon be planted, and then Coventry will hold its own against Cape Cod, Ocean County, and the world.

Scab in Sheep—Cause and Cure.

All breeds of sheep in all countries are more or less subject to the disease called Scab. A flock in perfect health and very clean, is not likely to have the scab; but if from neglect, improper food, or dirt in the wool, the skin becomes a suitable seat for the disease, it is liable to come, and run through the flock. It closely resembles the itch in man, and may be cured by similar remedies; namely, sulphur, mercury, tobacco, arsenic, or some mineral or vegetable poison applied externally. The disease is caused by a very minute parasite called the scab mite, *Acarus scabei*—so small as not to be noticed by the unaided eye without close scrutiny of the diseased parts. We represent them greatly magnified in the accompanying engravings. Figs. 1 and 2 exhibiting the upper and lower sides of a female, and figure 3 the upper side of a male *Acarus*, drawn to the same scale. These little creatures, which are about $^1/_{60}$th and $^1/_{85}$th of an inch in length, according to sex, find no proper dwelling place on the healthy, clean skinned sheep of which we have spoken; but when they do find the requisite conditions they multiply with astonishing rapidity, and spread through the flock, and from flock to flock. The females burrow in the skin, and make little sores, in or under which they deposit their eggs, which hatch, and in a short time, go to work producing broods themselves. The sores thus caused run together and form scabs; they make



Figs. 1 and 2.—FEMALE SCAB MITES.

an intolerable itching, and the sheep bite and scratch themselves fearfully, tearing out their wool in patches over their bodies. The disease sometimes becomes an epidemic, and through whole regions the flocks suffer so terribly that government action has been necessary to prevent their extinction. The suffering animals become more and more emaciated; their wool falls off; their bodies are covered with nauseous, scabby sores; their nervous system is incapable of sustaining the pain, and its functions, with those of the skin, being deranged, the digestive organs sympathize, and the sheep finally die.

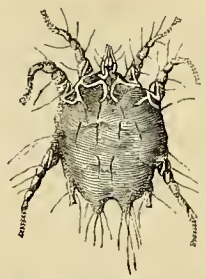


Fig.3.—MALE SCAB MITE.

The remedies for the scab are numerous. They consist of dips and washes containing vegetable or mineral poisons, as already stated. Precisely similar treatment is required as in dipping to destroy the ticks, described in the June number, except that it is always necessary to scour and scrub the scabby parts with brushes. It is necessary to repeat the dipping sometimes, and for security it is always best; although the effect of the dipping, cleansing, and scrubbing upon the skin is to render it an uncongenial nidus for the insect for a considerable time, it is probable that though the *Acarus* breeds in the skin it lives upon the diseased excretions like lice, which will not remain upon cleanly persons.

Fig. 1.—LOSS OF REAL ESTATE.

The Banks of Streams.

Brooks and larger streams add greatly to the convenience of farming, as well as to the beauty of rural scenes, and to the charms of country life; but they have their inconveniences too. They rise and overflow, and wash away their banks; shift their channels; carry away fences and timber; in short, do all the damage they can. Heaps of stones and even walls are washed around and demolished by the force of the current. Breakwaters of piles driven in the stream, having plank upon the outer side are useful in preventing the tearing effects of ice and very rapid streams; but they do not prevent the action of small waves which rapidly wash away sandy banks. A very gradual slope is the only form of bank which will effectually resist the action of waves whether great or small; and this is the form of ocean, lake, and river beaches, which are found of the most permanent character.

The course through meadows is naturally circuitous, and when brooks are swollen, the banks wash away in a manner to extend the "bows," and at the same time to enlarge them, so that finally the "necks" are worn through; and then the land is still further defaced by empty beds of the stream, here and there, piled with gravel, and utterly barren. Were the brook to be straightened it would probably have so swift a current that unlooked for damage might result. Besides, dams might be necessary to prevent the drawing down of ponds, or other bodies of water upon adjoining property. If the meandering, babbling brook is to be sacrificed to utility, the best way is to dig a broad, straight ditch, wide and deep enough to carry all the water even in floods; but as shallow and broad as possible. If the sides have a slope of not more than one foot in three, and can be left to lie long enough to get a good sward upon them they will be far less liable to be washed away. The more sloping the banks the less danger will there be of their being worn by the water. A brook thus straightened is a *ditch*, however, and though a gain in picturesqueness is made

Fig. 2.—FORM OF CHANNEL.

by giving the banks a curved slope, as shown in figure 2, by the dotted line *b*, yet no perceptibly better protection is afforded them. If, however, the brook is crooked, this peculiar curve in the banks which form the outside of the turns, is desirable,—first, as it deflects the stream more gently; second, because the channel will carry more water than another of the same depth, the sides of which are simply inclined planes. Where such turns are quite abrupt and the volume of water great, simply sodded banks are not sufficient; and it becomes desirable to plant willows on the outside banks of the bends. This is best done by cutting good, stout, willow sticks, two feet long, and an inch in diameter, and driving them into the bank on a slant, the tops inclining down stream and standing only three or four inches above the ground. The willows should begin at low water-mark, and extend nearly or quite to the top of the bank.

The action of rivers in wearing their banks is one of the few cases in which an absolute loss of real estate can occur without the loss or alienation of the title (see fig. 1). Acres, little by little, disappear, and the best engineering skill has sometimes failed to prevent it. One great difficulty is encountered in the ice which cuts and wears the banks, so that even if graded very well and set with willows or other water-loving trees, they will be cut away by its force. Except in places where breakwaters should be built at public expense, or by associations of citizens, a plan somewhat like the following will prove effectual as soon as the plantation is established.

The bank should be graded to a uniform or ogee slope, (see fig. 3;) and must be protected,

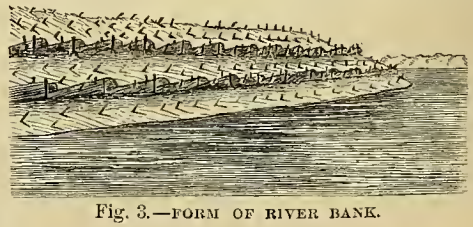


Fig. 3.—FORM OF RIVER BANK.

if necessary, while that is done, by a board fence set at low water-mark. When graded, fascines or long faggots are made. They should be of any common brushwood, alder, oak, maple, etc., made into bundles 8 inches through, and 10 feet or more in length, bound tightly once in three feet by withes or wire, just as they make *fascines* for military engineering. These may be laid in trenches several feet deep if there

is much danger from ice: the lower ends up stream, resting on the bottom of the trenches, and the upper ones coming out to the surface. They are confined in place by stakes, as shown in figure 4. These fascines will be found to

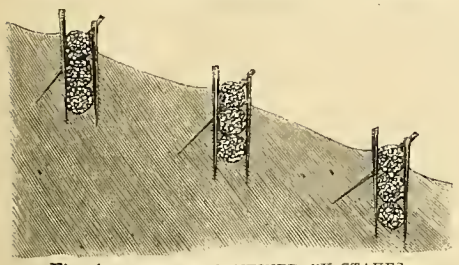


Fig. 4.—FAGGOTS CONFINED BY STAKES.

have a very strong anchorage, and though their tops may be broken and twisted by the ice, they will hold well and prevent the washing of the bank. Two or three lines of these fascines set 4 to 8 feet apart, may sometimes be necessary. The stakes used may be of willow, which will take root, and bear rough handling by the ice. When thus protected and guarded, willow cuttings, the larger the better, may be set upon the slope. These should be of the White, or Pow-

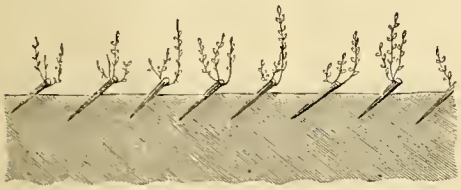


Fig. 5.—MANNER OF PLANTING WILLOWS.

der Willow, and they ought to be set with the tops pointing obliquely down stream—as indicated in the engraving, figure 5.

Grub-in-the-Head in Sheep.

Whoever observes the motions of a flock of sheep in the heat of summer, while at pasture, will see them huddled in groups or feeding in phalanxes with their noses upon the ground, and thus held in an obviously constrained position. They do this to be in a measure secure from the attacks of that pestering Gad-fly which is the cause of Grub-in-the-Head. It is called *Œstrus ovis*, and is closely related to the Bot-fly described on page 177 (May). Figures 1 and 2 represent the female, which is brown and yellow-banded. The fly aims to deposit its eggs within or close to the nostrils of the sheep. This is accompanied by no pain to the sheep, and probably, only by a disagreeable tickling sensation. The animal, however, seems to be aware of the effects soon to follow, for the eggs hatch in a short time (the books say immediately) and the little worm ascends the nostrils making the poor brute almost wild with nervous distress. It tosses its head, snorts, runs, stamps, and manifests the most acute excitement. The *larvæ* pass up the nostrils and penetrate the sinuses where they attach themselves and develop. Youatt says: "Having traced their circuitous course through an aperture under the turbinated bone into the maxillary sinus, they sometimes lodge there; others proceed thence into the frontal sinus and some reach the cavity of the bone of the horn. They are found occasionally in every cavity with which that of the nose communicates." The little grubs are at first white. They attach themselves by means of two hooks like those of the horse bot, and live upon the mucus secretions of the cavity in which they are lodged. When fully grown they present an appearance similar to figs. 3 and 4, which exhibit the upper and lower sides. There seems to be a great disparity between the size of the maggot and that of the fly, but it is not more than frequently occurs. When mature, the grub is able to exert a great force in wedging its way out through the narrow openings by which the little maggot entered, and again causes the sheep very great pain and nervous distress. It falls to the ground and burrows some inches below the surface. Its skin hardens to a shell, and the chrysalis, or *pupa* hatches into the perfect fly in 40 to 60 days. Thus the eggs are laid in July to September; the larvæ leave the sheep and enter the ground in April to June; the pupæ remain in the ground until the flies hatch out, in the heat of summer, and this is their round of life.

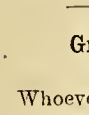


Fig. 1.—BOT-FLY.

Fig. 2.

Fig. 3.—GRUB, UPPER SIDE.

Fig. 4.—GRUB, LOWER SIDE.

Farmers often plow several parallel furrows at a distance of 8 or 10 rods apart for the sheep to bury their noses in. A daub of pine tar upon the nose is the best preventive and must be frequently renewed. Wild sheep may be made to smear their own noses somewhat by putting tar in the troughs and sprinkling salt over it. As the fly has never been known to eat anything, and in fact, has no perceptible mouth, efforts at poisoning it would fail. The grubs are easily examined in the spring by getting the butcher to split open a few pates of rather ill-conditioned sheep, if such can be found in market. Several grubs will probably be found in some. They appear to have but little effect on the general health of the sheep; but no doubt, when occurring in large numbers, they increase the violence of inflammatory and nervous diseases, and perhaps cause them, especially at the time of entering and leaving the sinuses.

SUPERPHOSPHATE FOR TURNIPS.—There will be a great demand for this fertilizer for the turnip crop soon after this month (July) comes in. Its effects upon turnips are wonderful, and a small quantity goes a great way—150 lbs. to the acre distributed evenly in the drills, or 200 or 300 lbs. sowed broadcast, are about the quantities usually employed. The value of a superphosphate depends upon the amount of phosphoric acid present. Bones are the usual source of this substance. It exists in them, combined with lime, in the form of a phosphate of lime, called "bone earth," which is insoluble in water and slowly soluble under the influences acting in the soil. In true superphosphate, part of the phosphoric acid, still combined with lime, but with water also, is quite easily soluble, and the remainder is more easily acted upon than raw bone, unless it be ground very fine. Turnips grow very fast, and need soluble manures to promote this rapid increase; and though they do not take a large quantity of phosphate from the soil, they seem to need it in abundance and in a soluble condition ready at hand, or they do not do their best. In buying superphosphates, the purchaser is at the mercy of the seller; and unless the State offers him some security, the only reliance he has, that he gets what he pays for, depends upon the interest or honor of the maker and seller, which too often fails him.

Earth Sewage—or the Removal of the Waste-water of Country Houses.

In order to secure the full benefit that the Earth System offers, it is necessary to provide for the inoffensive and economical removal of the waste water of the house—not only that of the kitchen sink, but that from sleeping-chambers and dressing-rooms as well.

This may be done by two systems. The first (Fig. 1) comprises a cask nearly filled with earth, with a board cover, and having a large wooden funnel (with a lid) leading to the interior of the cask. It may stand beside the house, and receive, just below its top, the waste-pipe of the kitchen sink. It should have a leaky bottom, so that the water it receives may escape after it has been filtered by the earth. The space between the top of the earth, and the board cover, should be packed full with horse manure; which will prevent freezing, and the puddling of the earth, which would keep the water from running through. The wooden funnel should also be filled half way up with the same material. The kitchen waste will take care of itself, and the slops from the chambers need only be poured into the wooden funnel. The only obstacle to the successful working of this arrangement is the freezing up of the earth. We have had no trouble (in the latitude of New York) in keeping it in operation all winter. A large hogshead, arranged as above, took care of the wastes of a household of four persons from November until March, without attention; and at the end of that time, the earth (having retained the impurities of the water) had become a most valuable manure. Only during last week was the water escaping from the bottom of the cask perceptibly impure, and this was the signal for changing the earth.

The same cask has, during the summer, received only the water from the sink, and, being uncovered, it is bearing a marvellous growth of weeds, which not only look well, but prevent the faintest odor from escaping from the surface of the earth. Another cask (covered) is doing satisfactory work with the up-stairs slops.

A still more satisfactory plan is shown in Fig. 2. This provides for the complete absorp-

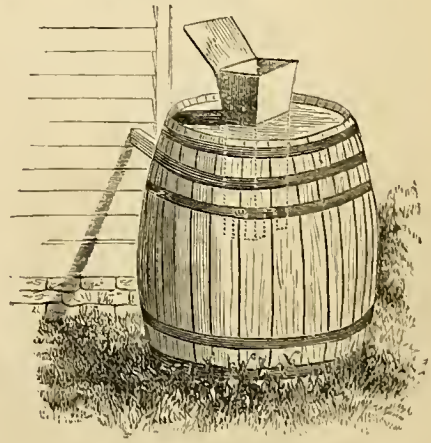


Fig. 1.—CASK FOR HOUSE SEWAGE.

tion of all the wastes of the house directly by the earth itself, and requires but little attention.

At a convenient point in the garden or lawn, a kerosene barrel, A, is sunk with its open end level with the surface. The house drain, D, runs to it with a good fall, so that every thing that passes the strainer of the kitchen sink will

be sure to be carried through. This drain has a diameter of 4 inches, and it enters the barrel about a foot below the top.

From each side of the barrel, at the same depth from the surface, a 3-inch tile runs out (B & C). This tile continues as far on each side of the barrel as to the lines *e*, *e*, where junction pieces are put in to connect it with a 2-inch tile. From these junctions the side drains continue on with 2-inch tiles, with circular bends at the corner, to commence the drains *f f*. The first 10 or 15 feet of the parallel drains are laid with 2-inch tiles, and from this on are continued to a total length of 50 feet or more with 1¼-inch tiles.

The side drains, B & C, should be laid exactly level, so that the water will flow out equally through each, and that which does not enter the inner parallel drains will pass on to the outer ones. The parallel drains should have a slight fall, so that the water will be able to flow through the whole length, but not fall enough to lead the water rapidly to their lower ends.

The drain from the sink to the barrel should have cemented joints, to prevent the escape of

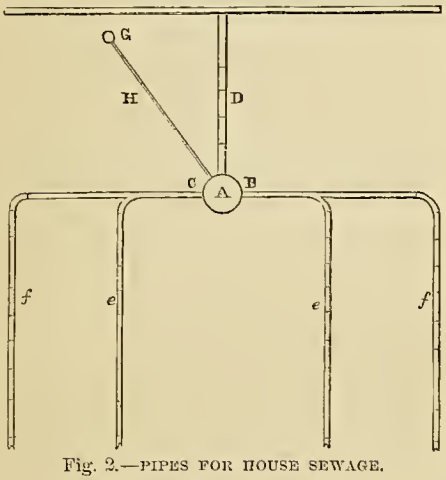


Fig. 2.—PIPES FOR HOUSE SEWAGE.

any of the water; and those beyond the barrel should have spaces between the ends of the tiles of ¹|₄ inch, the ends of the tiles being inclosed with collars. The entrances to the tiles B & C are protected with wire netting, to prevent the entrance of coarse particles. Slops from the bedrooms may be poured into the barrel (which has a movable cover), or there may be a covered funnel, G, nearer the house, connecting with it by the drain H of 3-inch tiles. In this case the funnel must have a strainer, to protect its drain, which, like D, should have cemented joints.

Beyond the barrel, the tiles are only 10 or 12 inches from the surface,—barely out of reach of the spade, and the fertilizing water that oozes out at the joints will be within reach of the roots of crops; while in time, the whole space between the lines of drains will be rendered exceedingly rich. It is not likely, if the work is carefully done, that such an arrangement as this will fail to work successfully for many years; and when a stoppage does finally occur, it will be but a trifling job to take the tiles up, clean them out, and lay them again.

The only attention required, is an occasional cleaning out of the matters accumulated in the barrel; and in cold climates the mulching of the ground over the tiles to prevent freezing.

We are now using precisely the plan here laid down, and so far as our experience with it goes, it is absolutely free from objection. It completely supplies the only deficiency of the Earth-Closet system, and the care of all sorts of waste about our own old-fashioned country house is now effected with an entire absence of odor that even the best appointed house in a well sewered and watered city, cannot equal. The system is so perfect, that it must rapidly work its way to universal adoption.

"Harris on the Pig."

BY LEWIS F. ALLEN.

"Harris on the Pig" is a new and valuable book, much needed in the present condition of domestic Stock Breeding in the United States. It is written by one intimately acquainted with his subject, and knows well how to treat it. It is a happy circumstance that some of our late writers on such subjects, can make something beyond mere compilations of authors and books that have gone before them, and those writers and books chiefly from abroad. What we need is American books, native in spirit, experience, and treatment; thoroughly practical and comprehensive, as well as exhaustive, in the departments which they discuss. Such a one we consider this to be. We here have the entire swine family under discussion, from the untamed wild boar of the forest, running through all its grades of civilization and improvement, to the most refined, and delicate porker which takes its ease in the sty, grazes in the clover-field, and in the end supplies the human family with a luscious and savory, as well as most necessary article of food.

Charles Lamb, the delightful English essayist, wrote one of his charming articles in laudation of "roast pig." Had he been disposed, he could have found in its flesh material for several other essays, equally amusing and entertaining, as its uses and virtues are so varied by condiment and cooking. But aside from any fanciful, or lighter view of the pig, like that of Lamb, the edible, and commercial, as well as economical discussion of the breeding, rearing, and treatment of swine as an important branch of our stock growing, is not only well worthy the attention, but the close study of every farmer in the land, as well as of the village dweller who keeps but a single shoat in his pen to eat the daily slops from his kitchen, or the remnants from his table.

Mr. Harris takes all the different approved breeds into his category, and treats them with discrimination, fairness, and excellent judgment. He describes them all minutely, tells us where, and how they differ in their good qualities; which breeds are best fitted for particular uses, climates, and soils; describes their best way of keeping, their most profitable food, their treatment from birth to breeding or slaughter; and, in fact, leaves nothing untouched or unsaid, that will develop the most profitable end in the various purposes for which its flesh may be designed.

The origin of the present different breeds, too, is well discussed, and much light is thrown upon matters connected with swine breeding and treatment, seldom before treated, and but little understood. He has invested the subject with a dignity seldom known in connection with so vulgar a creature, as the *hog* is usually considered, and elevated it to a companionship with the other stocks of the farm, which few have ever been willing, even among its admirers, to concede. The illustrations, in the way of portraits, of the different breeds, are generally correct and in good taste, although occasionally faulty in execution, but on the whole creditable and true to their originals.—The plans of piggeries, with their various arrangements and accommodations, modes of feeding, etc., are excellent, and well planned.

We might make liberal extracts from the work with decided benefit to the reader; but when the book is so readily obtained, and the price so small, any one who wishes to learn more of the subject than they now know, should get the book, study it closely, and profit by its instruction. The book has another merit; viz., it is the *only* one of its kind which we have seen so fully treated by an American author. Let no one think that a study of the pig is a low subject. Some of the most eminent husbandmen of Europe have made the subject of swine and their improvement a study of years; and the most gratifying success has crowned their efforts. Let it be so here. No subject whatever, which tends to the economy of the farm, is too low for thought and scrutinizing attention by him who owns, works, and lives by its production. We look upon all kinds of *improved* stock as giving a larger amount of profit with a given amount of food, as we look upon improved farm machinery and implements, as doing a greater amount of work with less manual labor and expense. The time has arrived in which we can afford to keep neither poor stock, nor poor implements, when we expect fair profits from our farms; and every one should aim at obtaining the best breeds of all that he can in order to arrive at the highest degree of success. In this the pig is quite as important as any other branch of stock rearing. We commend this book to every farmer and country dweller in the land.

Imported Jerseys.

There is a great rage for animals of short pedigree, and if one comes from Jersey no more questions are asked, whether the animal shows strong marks of the Guernsey blood and the old yellow Norman stock, or not. We have men starting Jersey herds who have no intimate acquaintance with the stock, and breed simply because they suppose money is to be made out of them. Herd-book animals of certain fashionable points sell from two to five hundred dollars each; not on account of their intrinsic value, but because of the artificial value imparted to them by the herd-book. They are supposed to have had the judgment of the best breeders passed upon them, and to have inherited from a long line of ancestors the best qualities of the breed. The herd-book in reality merely authenticates the fact of importation in the case of imported animals, without, generally, going into the history of the animal's ancestors across the water. The Jersey stock is pure bred at home as a rule, but there is a difference there, as everywhere, among breeders. Some are careful and conscientious men, others are not. Some breed from the best, and others from what they happen to have. We do not believe there is any foundation in fact for the preference given to short pedigrees. The best Jerseys that could be bought without regard to price have been carried off from the island for the last thirty years. The effects of this steady drain upon the stock can be readily understood, when we consider that the island is but a small patch of land twelve miles long by five broad, embracing only 39,000 acres. It is a region of orchards and gardens, and supports with a varied industry a population of some sixty thousand. No inconsiderable portion of this very limited territory must be devoted to other purposes than dairying, in order to sustain the population. Certainly not more than an average agricultural township can be left as the breeding ground of these cattle. Yet from these stinted farms, and from these farmers of limited means, the Jerseys are annually drawn and exported, every man tempted by the high prices offered to part

with his best. Is it any wonder that this breed, naturally small, has been growing smaller under this long-continued process of depletion. Meanwhile the breeders in England and in the United States, who have been getting the finest animals the island afforded, have been busy in improving them. They have as much science and skill in breeding as Jersey can boast, with ampler fields and ampler means. Nothing that skill and money can do has been left undone to bring these animals to the perfection of their kind. They have lost something of their ragged points, and have grown handsome. Their weight has been increased without any loss of constitutional vigor. The quantity of milk and butter has been increased. Intelligent men, well acquainted with the history of the breed, have no doubt that better Jerseys can be bought, either in England or in this country, than can be had on the Island of Jersey. They have all the good points of the breed, with greater weight and better form. They have been as carefully bred, though names have not always been given to the animals, and pedigrees recorded. Some of them have come down through ten generations of thorough-bred ancestors in this country, yet they cannot go upon the herd-book, because they have not ancestors with names, and no records have been kept. If they were worse animals, and came from Jersey last year with the same oblivion of ancestry, they would find place upon the herd-book without question. Some very respectable breeders are not able to see the wisdom of this partiality for recent importations and short pedigrees. They breed from the best animals if reasonably sure of their pedigree, whether a record has been kept or not. If "like produces like," they will have the best herds in a few years; and gentlemen, who are breeding from inferior animals because they are direct from the Island of Jersey, will wake up to their folly with a short purse as well as a short pedigree. *

Second Clutches of Turkeys.

We have just eaten the last of a flock of fall hatched turkeys; weight eleven pounds strong. They came off in September. Farmers generally dislike these second broods, and are quite willing to sell them at very cheap rates, any time in October or November. They do not want to have the wee things peeping about in the cold, getting frost-bitten, and dying during the winter, and if they live, eating twice as much corn as they are worth. With turkeys at ten cents a pound, this may be the true view of the case; but when they are worth twenty-five to thirty cents a pound, there is another view of the question. We have tried these second broods for several years—and on the whole think they pay pretty well. Sometimes a turkey that comes off with an early brood, if well fed, will lay a second time and want to set. We always let her. If the first setting is broken up by vermin or from other causes, they are sure to lay again. We always welcome the second broods if we can get them any time before the first of September, and do not object to them as late as the first of October. If we can get them in July or August, it is so much clear gain. They are much more likely to live than the early broods, of which a large per cent will die, without they have the greatest care and watching. But in the summer, the chicks find a warm atmosphere, and plenty of animal food in the pastures and woods. They need much less feeding, and grow more rapidly. If they reach two pounds' weight by November 1st, we always consider them safe, and a very good investment. But July birds will sometimes weigh five or six pounds by Thanksgiving; and need not be kept until spring before they are ready to slaughter. These late broods make an excellent market for small potatoes and corn nubbings all through the winter. The secret of raising them, and making them profitable, lies almost wholly in the regular and full feeding. When well fattened, they have the advantage of coming to a bare market, and bring a high price. Most farmers kill off their flocks either at Thanksgiving or Christmas and New-Year's. By February, turkeys are higher, and in March and April it is difficult to get them at any reasonable price. In the spring they are not only in demand for poultry, but for breeders. Men who ought to know better, will readily buy an eight-pound turkey hen, for two dollars, when they would leave a twelve-pound bird at three dollars, much better worth four. This we do not eulogize, but as long as people buy such birds, and pay for them, we raise them.

Will it Pay to Grow the Yellow Locust?

I was down at the wharf the other day, where a cargo of Locust logs had just been landed from Long Island. I sat down upon a stick about 12 feet long, and a little over a foot through at the but, and said I to the carpenter, "What do you have to pay for such timber as this?"

"It costs me," said he, "a dollar a foot by the quantity, and that stick would come to about eight dollars."

"And in such a tree I suppose there would be at least two good posts above the but-stick?"

"Yes, or what is better, a second cut for treenails, worth as much a foot as the but."

"That must pay pretty well?"

"Yes, it does. I know a man that sold the timber on an acre for $2,700, standing."

That was a pretty large story for an acre of thin, gravelly soil, but a little estimate will show that it is not extravagant. The stick upon which I sat had forty-four circles that could be counted, indicating as many years of growth. It was worth, standing, at least $15. Six hundred such trees would not make a very thick grove upon an acre of land, and these would be worth $9,000 at the present price of the timber. But it takes forty-four years to grow such a crop. Land suitable for growing it can be had in any desirable quantity at, say, $25 an acre. It is generally calculated that money at interest doubles once in about ten years. Twenty-five dollars doubled four and a half times would be only $500 at the end of forty-five years. But, it is well known, that in making a locust plantation we should put out three or four times six hundred trees; and the thinnings of the plantation from time to time, with the pasturage, would pay the expense of planting and cultivating for the first few years. At twenty years of age many of the trees are large enough for posts and treenails, and might be cut for these uses with great advantage to the remaining timber. After the trees are once fairly started, there is no need of cultivation; and the quality of the land is all the while improving, as the increasing crops of grass abundantly testify. Can a farmer who has plenty of land, make any better provision for his old age, or for his heirs, than to plant a few acres in Yellow Locust? With all the deductions to be made from the figures there must still be a large margin for profit. CONNECTICUT.

Mules on the Farm.

Mules are almost universal on the sugar and cotton plantations of the far South, while the favorite team on the Northern farm has always been the ox; partly because his carcass is so valuable when cut into steaks, and partly from the rough character of the soil, which makes a slow team exceedingly desirable. The mule is much stronger than the horse, but not so fast as to endanger plows on stony soils, or carts on rough roads. They are more easily kept than either horses or oxen; and will consume almost any rough fodder with relish. A serious drawback to the ox team is, that it demands pasture a part of the time, or its equivalent in green fodder. If kept up continually and fed with dry hay and meal, oxen will lose appetite after a while and fail in flesh. The mule can be kept up as steadily as the horse, without any loss of flesh or strength. This is a great advantage to those who have full work for their teams. It rather agrees with mules to have a daily task, and to be kept straight at it. A week's idleness seems to demoralize them, and they have to learn their lesson over again. They are not as liable to disease as either the horse, or ox, and are much longer lived. A well-used mule team will last thirty years; and that is about long enough. But it will be said, the mule is such an inveterate kicker that you never feel safe with him. Kicking is his aptest mode of defence. It is so natural to return blow for blow that the mule receives a good education in the line of kicking rather than in forbearance. If we are persistently patient with him, and treat him with kindness, he will lose his fears, and his disposition to kick. If you want a good tempered, mule team, you must keep your own temper. You must join Mr. Bergh's society and come into good fellowship with brutes. Yelling, scolding, cursing, and blows will make a vicious team almost inevitably. A well-broken mule team is a great prize upon any tolerably smooth farm. There is more work in them for the amount of fodder they consume, than in anything else we have ever tried. As we are only to lose his carcass at the end of thirty years, it may happen in the progress of the world, that by that time mule meat will be in fashion, and the butcher will give as much for him as for an ox. Let us try the mule team, and wait doubtfully for the beef.

REPAIRING BOARD FENCES.—There are many dilapidated board fences that by a little attention might be made to last many years with comparatively little expense. A few new boards should be provided and judiciously used to strengthen the weakest panels. The trouble with such fences is that the ends of the boards nailed to the posts are so weakened by decay that the nails will not hold. We should have some broad-headed nails; but in the absence of these it is not difficult to make a few washers out of hoop-iron, that will enable the nails to fasten these partially decayed boards to the fence. Posts that are partly or wholly rotted off at the surface of the ground may be repaired without taking the boards from the upper portion, by digging a hole by the side of the old post and inserting a piece of an old oak rail or other suitable wood, and spiking it on to the post. In some such way as this many old fences which are rapidly becoming useless may be patched up so as to last until they can be replaced by new ones. If any readers have discovered a more excellent way of doing the work we shall be glad to hear from them.

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"COMING EVENTS CAST THEIR SHADOWS BEFORE."—Drawn by HERRICK.—*Engraved for the American Agriculturist.*

The artist has represented the American Panther awaiting his prey, and in so doing has given us a pleasing picture. The shadow in this case is more telling than the substance. An animal so large and active as the Panther is very destructive to game, and a single pair will hold the animals over a large territory in terror. In the case of the panther and the deer we have a nearly equal match. The deer has the most acute scent and hearing to warn him of danger, and great fleetness to allow him to escape it; while the panther has all the crouching cunning of the cat, and the power of limb that will allow it to make a sudden spring upon its prey. Not only is the panther destructive to the more useful of the wild animals, but its inroads upon the domestic ones of the new settlements are the cause of serious losses, and its complete extinction within our borders cannot be far distant.

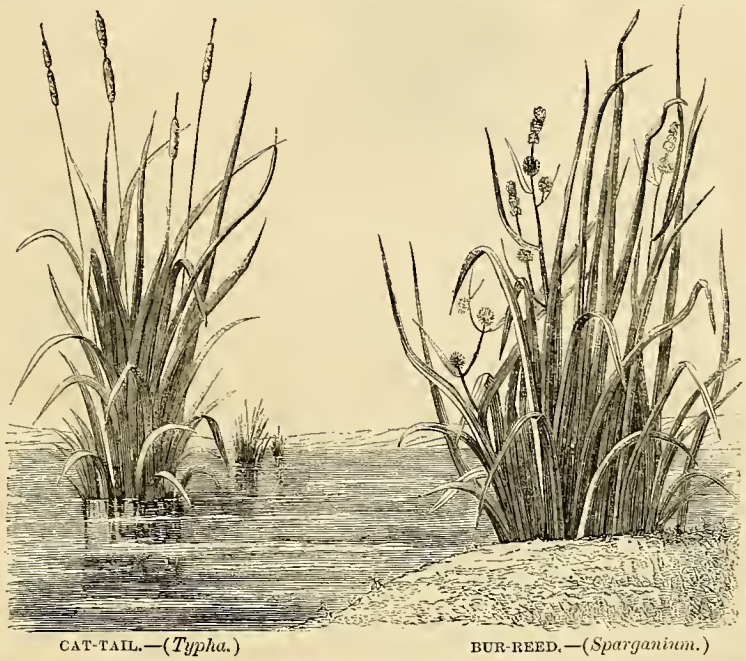
Absorbents.

An empty barn-yard at this season is the sign of a slack farmer. He has cleaned out his styes, yards, and the barn cellar, and the planting is all finished. Weeks or months go by, perhaps, before he thinks of laying the foundation for the next crop of manure. The cows are yarded at night, but there is nothing to absorb either liquid or solid manure. It is exposed to the hot sun, the rains, and the winds, and much of its value is lost. The summer is the best time to make manure, if the materials are seasonably furnished. The process of fermentation goes on much more rapidly, and the valuable gases are diffused through the whole mass of absorbents. While the yards are bare, no farm work will pay so well as gathering absorbents, at least enough to cover the whole surface an inch or two in depth. It is not necessary to fill the yards all at once. A few loads added every week will prevent loss. Shore farmers begin to gather the new crop of sea-weed this month, and no one who has access to this article should fail to use it. All waste vegetable matter makes a good absorbent, and swells the compost heap. Peat and muck thrown out during the past season and weathered, are excellent; but that freshly dug soon cures in the yard and should not be overlooked, if the others fail. If these are not available, use surface soil. The value of dry earth as an absorbent has not begun to be appreciated. Turf makes a good absorbent, and by its decay adds value to the manure. It is much better for a farmer to peel a few rods of his best meadow, than to have his manure wasting all summer for want of absorbents.

HOW TO GET WORK DONE ON A FARM.—Every farmer is at times oppressed with a sense of the overwhelming number of things that requires to be done. We have seen a nervous man in such circumstances commence one job and before he had got fairly started, abandon it for something that seemed more pressing, merely to leave this in the same unfinished state; and when night came he had accomplished little or nothing, and passed hours tossing about on a sleepless bed thinking what he should do on the morrow. A young farmer could not adopt a better rule than to repeat to himself every morning, "Whatsoever thy hand findeth to do, do it with thy might," and act upon it. When a job is commenced, finish before beginning another; but, at the same time, attend to the little things. But if you happen to get behind, strike a lively gait, do one thing at a time, and when it is done, take a little rest by immediately commencing another, and in this way you will pull through in good time.

Tying Materials.

In small gardening operations the amount of tying materials required is not large, and the difficulty of obtaining a suitable article in the necessary quantity is not felt. In large nurseries and vineyards, it is quite another matter.—Unless the proper material is at hand, the work is poorly done, or so slowly as to cause a loss of time, and consequently of money. Last year we had an article on the cultivation of willow for nursery and vineyard purposes. The slender shoots of the Osier, or the Golden Willow, are largely employed by nurserymen in binding trees for packing, and by the vineyardist for fastening the canes of the vines to the trellis.—For tying up the young growth of vines, Papaw bark and cotton twine are used; and recently the shreds of gunny bags have been found available for the purpose. For the nicer ties required in budding, probably no material is superior to the bass bark. The Russian mats made of this material, are imported in large quantities, and are much used for packing furniture and other articles. The strands of a fresh, bright mat, softened by soaking, make a tying material that is nearly perfect. The Cuba bast is very strong, but it is too inflexible. The inner bark of our native Bass wood, or Linden, when well prepared, makes an excellent tie. In the French nurseries they use two aquatic plants, which, though common with us, we have not known to be employed by our nurserymen—the Bur-reed and Cat-tail. Both these are found along our ponds and in marshy places. The Bur-reed (*Sparganium*) is less known than the other. It is shown on the right-hand side of the engraving. It is from two to four feet high, has long ribbon-like leaves, and bears its flowers in dense globular heads, scattered along the stem; the upper ones are sterile, but the lower ones ripen into a spherical cluster of pointed seed-vessels, forming a bur an inch or more in diameter. The Cat-tail (*Typha*) is too well known to require description. These plants are collected towards the end of summer, dried in bundles, and stored away. When required for use, they are soaked for some hours in water, and then wrung out. Baltet, in his excellent work on the Art of Grafting, recommends these tying materials, but says: "A proper medium between wet and dry is necessary. If too dry the leaves lack strength and break; and if too moist they cause the decay of the bud." Some of the western nurserymen find Indian corn husks, those of delicate texture selected from the inner layers, to serve admirably as a tie in budding. It is preferred by some nurserymen to all other ties, as it decays very soon, and yielding to the growth of the stock, saves the trouble of removal.



CAT-TAIL.—(*Typha.*) BUR-REED.—(*Sparganium.*)

The Variegated Alyssum.

The common Sweet Alyssum (*Alyssum maritimum*), is a well-known, garden annual, forming large spreading tufts with numerous clusters of small, white flowers, which resemble those of the Candy-tuft in appearance, and have a remarkably sweet, honey-like odor. Of late years a variety with the leaves margined with yellowish-white has appeared in our collections, and is very useful in contrast with other plants, as its subdued color answers admirably to set off more brilliant things. The variegation is so fixed that it is reproduced true from seed. Seeds are yielded but sparingly, and the plant is generally propagated from cuttings, which are rooted with ease. It is frequently grown in green-houses in winter; and is useful for hanging baskets.

VARIEGATED ALYSSUM.

Growing Lettuce in Hot-beds.

BY PETER HENDERSON.

In this latitude the seed for lettuce to be grown in hot-beds should be sown, to be safe, at two different times, say, August 25th and September 5th. The variety best suited for the purpose is the Boston Market or Tennis Ball. Before sowing, the bed for the seed should be prepared in the very best manner by thoroughly plowing and harrowing, or digging and raking, and be enriched with short manure thoroughly incorporated with the soil. The surface being fined down by raking, the seed should be sown thinly; whether broadcast or in rows makes little difference, but if sown so that the plants will stand an inch apart each way, when they come up, they will be much stronger than if they are at half that distance. As the weather is often dry at the season named, the seed after being raked in should be rolled with a heavy roller or trodden down with the feet, particularly if the soil is dry. If the seed has been regularly sown, but little labor will be necessary except to pull out such weeds as may come up, but if too thick, the plants had better be thinned out to the required distance.

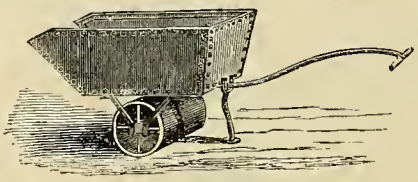
The next thing now is to prepare for the hot-beds. The best situation for them is a position sheltered by woods, hills, or fencing, from the north and west. The number to be used must govern the length of the lines; but we should say that a convenient length is 300 feet, or about 100 sashes in length, leaving a distance of nine or ten feet between the rows so that a cart or wagon can pass between with manure, soil, etc., also for the convenience of laying the mats and shutters used in covering. The pits for the hot-beds are sunk about 2½ feet deep, and of the width of the sash—6 feet. Posts are placed along the back rising above the surface 9 or 10 inches, and along the front about 6 inches less, to give pitch. To these posts, boards are nailed; and across are placed the slides or rafters on which the sashes rest. This completes the making of the pit. As the lettuce plants will be fit to be planted about the middle of October, the manure or material for the hot-bed should have been in preparation, at least three weeks previous. This may either be horse manure mixed with leaves, or with refuse hops, or stable manure only; but of whatever composed it must be placed in heaps to induce fermentation, and frequently turned to "sweeten" it or dispel the rank heat. When ready it should be placed in the pit to the depth of about 18

inches; if rough it may be trodden down by the feet to that depth, but if short and heavy, it need only be patted down by the fork; for, if the heating material is short and wet, being too much trodden down it will "fire-fang," or burn itself out. On the manure, place 4 or 6 inches of soil previously prepared by having at least one-fourth of its bulk well pulverized manure. It is now ready for planting. The plants should be about 7 inches apart each way, or, about fifty under each sash. If the weather is mild after planting, the sashes must be lifted so as to ensure thorough ventilation, but they need not be covered at night with mats or shutters until frost comes. Through November no other covering except straw mats will be necessary; but from December onward the mats must be covered by shutters so as to entirely protect the lettuce from frost, or at least prevent it from getting frozen hard; a slight frost would not materially injure it, but if kept entirely clear of frost so much the better. If due attention has been given to the crop it will be ready for market about Christmas, or at least a portion of it, as it varies from Christmas until the end of January. At this season it brings at wholesale, if a fair crop, an average of $10 per 100 heads, giving, say clear of all contingencies, $4 per sash. Now to continue the use of the sashes, a reserve of plants must be on hand, that have been planted thickly in cold-frames, to plant in the hot-beds as soon as the first crop has been cut out. This is a simple matter now, for everything is ready, and all that is necessary is to fork up the soil a-fresh and plant as before; following the same process of protecting at night with mats and shutters, and ventilating during fine weather. The crop will come in by the first of April; at this time the price is sometimes lower, but rarely lower than $3 per sash. About the first of April is in time to plant the third crop of lettuce which will come in about the middle of May, bringing, say, $2 per sash. Thus the three crops give in the aggregate, $9 per sash. These prices are a fair average for the winter and spring of 1870. Let us look at the first cost and receipts of, say,

200 sashes, 3×6, at $3.00 each	$600
Construction of pits for same	200
200 ½ inch Pine shutters, @$1.50	300
150 straw mats, @$1.00	150
Labor of one person from 1st Oct. to 1st June	300
Cost of selling $1,800 at 10 per cent	180
20 loads manure at $3 per load	60
	$1,790
Product of the three crops of 200 sashes at $9 each	$1,800
Profit over all	$ 10

It will be understood that $1,250 of this amount of expenditure is capital invested in material that will keep in good working order, with a little repairing, for a dozen years. I have sashes in use now which have been in the service for 20 years, which may still do duty 10 years longer. I think it safe to say that the yearly profit at present prices (and they are better than they were twenty years ago), of 200 sashes properly worked in lettuce thus grown, would give from $800 to $1,000 a year to a man who was not afraid of putting his own shoulder to the wheel. It must not be supposed that 2,000 sashes would give a profit in the same ratio. For the reason as I have before said, in writing on vegetable products, that one man having a large quantity of a perishable article on hand will often experience a difficulty in selling it.

A ROLLER BARROW.—An implement in which the garden roller and wheel-barrow are combined, is in use in the public grounds and gardens in England. The engraving renders any description unnecessary. When used as a roller it may be brought to the desired weight by placing stones in the box, which is made of iron plate. It is emptied by lifting the handle and dumping the contents. It possesses advantages over a common wheel-barrow, as it is not, like that, liable to cut up the walks and lawns—a great annoyance, especially in wet weather. The



ROLLER BARROW.

implement is found useful in carrying away cut grass and fallen leaves, and in bringing fertilizers on to lawns, or in general garden traffic.

Summer Propagation of Shrubs.

Those who wish to multiply such shrubs as they have in their gardens, generally divide a clump or remove suckers, as the case may be. Some shrubs divide very well in these ways, but with others the stems thus separated are but poorly furnished with roots; and when set out, if they live at all, are a long while in becoming vigorous plants. It is much better to start vigorous little plants from cuttings. Nurserymen and florists who do things on a large scale, use appliances adapted to the work; and the amateur, seeing the extensive propagating houses, is apt to think that he could not succeed without a similar arrangement. With a saucer of clean sand and a supply of water, he can do, in summer at least, quite as well in a small way as the florist does in his large operations. We have before described and advocated what is called saucer propagation for verbenas and other soft wooded plants. Our own success and that of our friends, in multiplying shrubs by its use, induces us to commend it to those who have choice shrubs which they would like to propagate. A saucer or similar dish is filled with clean sand—beach sand will do if the salt is washed out of it. Cuttings of the green, tender growth of shrubs an inch or so long are stuck in the sand close together. The sand is then made thoroughly wet—"sopping wet," and kept so, the saucer being exposed to full sunlight. Success depends upon keeping the sand always wet; and as evaporation proceeds rapidly in summer, the process requires more care than when cuttings are treated in this way in the spring months. The Terrace-pot described by Mr. Henderson in May last would obviate the necessity for frequent watering. As soon as the cuttings show a root, no matter how small, they should be potted in small pots of good soil and placed in the shade for a few days. Weigelas, Spiræas, and a few other shrubs that we have tried in this manner succeeded admirably. We do not say that all shrubs will do as well, as they differ very much in the ease with which they strike root. Another method is to use hardened or partly ripened wood of the present season's growth, and place the cuttings in a frame covered by a sash and in a shady place. A substitute for a sash may be made by tacking a piece of muslin over a frame. This will admit sufficient light and prevent too rapid evaporation. The earth in which the cuttings are placed should be light and sandy, and water must be supplied as often as needed. Not only may cuttings of shrubs be treated in this manner, but those of Geraniums and other plants desired for the house in the winter may be rooted with ease.

Markets near Home.

The natural gravitation of produce is towards the large cities. This is true not only of the heavier productions of the farm, but fruits and garden vegetables find their way there as well. The small towns and villages within fifty miles of New York City are supplied in good part with fruits and vegetables that have first made a journey to the city, and are from here distributed to various points. The same is doubtless true of other large cities. The markets of towns and villages are poorly supplied with things that are produced in abundance in their immediate vicinity. Large city markets present advantages to both producer and consumer. The one who raises garden-produce is always sure of a sale at some rate; and he who would purchase is quite certain to find any article in season that he may desire. On the other hand the producer often suffers when there is a "glut in the market," and the purchaser has his articles in all the worse condition for long travel. We give an instance of what was done by a gentleman of our acquaintance last season, as an illustration of what may be done towards establishing a market near home. This gentleman grows strawberries largely, but he is a little north of New York; and by the time his fruit is ready the market is overflowing with berries from New Jersey, and he has been obliged to sell his fine fruit at the time when prices were at their lowest. Last year he took his fruit to "S.," a flourishing town about ten miles from his place, and had it understood that he would bring it regularly during the season. Both parties were satisfied with the arrangement; the people of "S." found that they need not send to New York for berries, and the grower obtained much better returns, as he saved freight and commissions. We have no doubt that what was done in this instance may be done in many others; and that growers who live near towns and villages will often do better in the long run to establish a market for perishable articles, in small places, than take the risks of the enormous competition always found in the larger ones. One essential to success in this matter is to convince the customers of the smaller place that the supply will be sufficient and regular; otherwise they will prefer to send to the great centers where they know that the supply is certain.

Notes from the Pines.

RHODODENDRONS!—It is very satisfactory to look at that group; to be sure there are only five plants; but if one wishes to see them by the acre he should go to Parsons & Co's Nursery in Flushing, where they are made a specialty. I don't know how a few dollars can be better invested in flowering shrubs than to use them for Rhododendrons. Only sorts of proved hardiness should be purchased. Many suppose that they require great care and petting, but they will grow in any good garden soil except it contains too much lime. They will stand a great deal of abuse. I have one in flower as I write, which two years ago some wretch pulled up, broke from it every flower cluster, and left it a wreck of a plant, too unsightly to be returned to its former place. I put it to bed in a pail, in a corner of the backyard for a hospital, and fed it on water. It broke finely and in autumn was well supplied with foliage and buds and the next spring bloomed as well as if nothing had happened to it. Aside from the beauty of their

bloom, the fine, broad foliage, which is green all the year, commends them.

Moving a Large Arbor-Vitæ.—A fine Arbor-Vitæ, twenty feet high and furnished to the ground, stood too near the house; and after much hesitation we concluded to move it. The earth was dug away so as to leave a good ball with the roots, and then it was to be transported to its new place upon a stone-boat. Everything was made ready, and some extra force called in; but the tree set all our calculations at naught. The sandy soil would not stay with the roots at all, but left them almost as clean as if they had been washed. The roots were kept wet until they were covered in replanting, and now the new growth is starting and the removal is thus far a success. August, however, will decide the matter.

Poison Ivy is a great nuisance. One of us has been sorely poisoned by it. It is not only dangerous, but a miserable weed which is most difficult to eradicate. Probably only a small minority of people are susceptible to its poisonous influence, but it affects a sufficient number to make it a serious nuisance, and one which should be suppressed. In many places it covers almost every fencepost. If it is proper to make laws restraining a man from raising Canada thistles to infest his neighbor's land, there ought to be one to prevent him from poisoning his neighbors as they pass along the highway.

Honeysuckles.—Dr. K. has the pillars of his veranda very neatly covered with honeysuckles; four vines run up at each pillar and are equally covered with foliage from the bottom to the top. We generally see naked stems below and a mass of branches above. The Doctor sets out a plant and allows four shoots to start from the root; these are each trained to a perpendicular wire. When the shoots are a few feet high the point is pinched; this causes a branch to start at each leaf; the uppermost branch will continue up the wire for a leader and after a while it is pinched again. The side shoots are also pinched if they grow too strong. The result is a stem with short branches along its sides, which makes a very neat appearance.

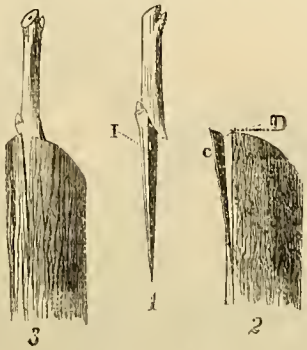
Can I Succeed as a Market Gardener?

BY PETER HENDERSON.

"D. H.," writes me thus: "I am a bookkeeper with a salary from which I can save but little; but by rigid economy during a series of years, I have scraped together $2,000. My health is only ordinary. With that capital can I succed as a Market Gardener by hiring an experienced gardener?"——This inquiry is a type of hundreds I now receive annually, and to which may be given this general reply. From the nature of the question no very definite answer can be given, though I would say that the chances are two to one against success. It is a well-known fact that the chances of success in mercantile business are even far less than this. "D. H." may be a capital book-keeper, yet it is doutful if he has the necessary endurance to stand the wear on the constitution that market gardening involves. If he concludes to start at gardening, he is more likely than not to select a soil entirely unsuited to the purpose. In most sections of the country there are fewer soils suitable for the cultivation of vegetables than there are those that are unsuitable. Again, he is an educated man, and this very fact would be rather against him than otherwise; as it would naturally incline him to refined society and associations, which I am sorry to say the beginner in market gardening cannot possibly afford to indulge in. The hiring of an "experienced gardener" would take all the cream off of the profits; experienced market gardeners are exceedingly scarce; our laborers in the market gardens are generally an ignorant class, with very little ambition, and not one in a hundred of them is fit to manage. Though employing thirty hands myself, I have often been sadly at a loss to select from them a suitable man as foreman, though many of them had been with me for years. When one shows the necessary ability, his services are much sought after, and he readily commands $500 or $600 a year and board. Clerks, book-keepers, nor city-bred men generally, are not the ones likely to be successful as workers of the soil; few of them have any conception of the labor required to be done to ensure success. I started business in Jersey City at the age of 23, with a capital of $500, which it had taken me three years to make as a working gardener. For the first five years I was in business, I can safely say that we worked, on an average, sixteen hours a day, winter and summer, with rarely a day for recreation. Now the majority of clerks, book-keepers, or salesmen do not work much more than half that time, and few of them could endure this lengthened strain in a summer's sun,—and without this endurance success is out of the question; for all beginners to-day must do as we did until they get their heads above water,—or else such is the competition, they must go to the wall in the business; we therefore caution "D. H.," and all such who are not in robust health to avoid either farming or gardening, *if their necessities require them to make a living thereby.* That the work of the farmer or gardener is conducive to health when health has not been impaired, there is no question; but the long hours of labor and the exposure necessary to success must tell against a feeble constitution.

Perfected Crown Grafting.

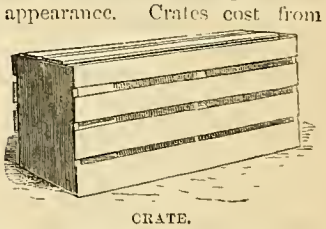
Having occasion to graft over a pear-tree while it was in full leaf, we tried, for most of the limbs, what the French call the Perfected Crown Graft. The cion is shaped as shown in figure 1. The stock is prepared by cutting it off as for cleft grafting, but if only one cion is to be inserted, it is cut sloping as in figure 2. Instead of making a cleft in the wood, a longitudinal cut is made through the bark only. A thin line of bark is cut away from the left-hand edge of the wedge-shaped portion of the cion, as at *I*, fig. 1. The left-hand portion of the bark of the stock, (*C*, fig. 2), is slightly lifted and the cion thrust down between it and the wood, the edge, *I*, of the cion coming in contact with that portion (*D*, fig. 2), of the bark of the stock that is not disturbed. Figure 3 shows the cion in place. Two cions may be placed in a large limb, in which case it is cut off square, and the notch on the cion is square instead of slanting. The wounds are covered with grafting wax in the usual manner. The success thus far is very satisfactory; but it remains to be seen if the union will be strong enough when the grafts have grown larger. The operation is much easier to perform than to describe, and is quite rapidly done. After the stock has started to grow, this method is much safer than cleft grafting, which at that season is troublesome to do.



PERFECTED GRAFTING.

Peach Crates.

Planters will now be making ready for the transportation of their crop to market, and we give the following timely directions for making a crate from Mr. Fulton's very thorough work on Peach Culture: "The standard dimensions of a crate are eight inches wide, fourteen deep, and twenty-three and a half long, outside measure. They are made of pine or other light wood. The ends and partition are sawed three-quarters of an inch thick, seven and a half wide, and fourteen long. The bottom and top twenty-three and a half long, six and a half wide, and three-eighths of an inch thick. The sides are composed of four slats, twenty-three and a half inches long, two and a half inches wide, and also three-eighths of an inch thick. Sometimes lighter stuff is used. The ends and partition are thicker, because to these all the other pieces are nailed. The whole crate consists of thirteen pieces. It is very simple in construction, and any intelligent hand, with a proper frame, can put it up without difficulty. The stuff is sometimes planed on the outside, which gives it a much neater appearance. Crates cost from thirteen to twenty dollars per 100. —They go with the peaches, and are never returned;


CRATE.

hence, those who ship in crates must provide as many crates as they have fruit to fill them. The reasons they are not returned, are two. First: they cannot be packed in each other like baskets, but occupy precisely as much room as when full. They are much more troublesome to handle, and the transporters will not return them free of charge as they do baskets. Secondly: they are usually reshipped or sent at once to a distant market, and sold with the peaches."

Worms on Currant Bushes.—We have often recommended the use of powdered white hellebore to destroy the caterpillars which feed upon the leaves of currant bushes. This is very efficacious, though it is somewhat inconvenient to use on account of the violent sneezing produced if any of the powder finds its way into the nostrils. Mr. H. G. White, of Buffalo, N. Y., finds a mixture of tar and soap to destroy the caterpillars. "Take of common pine tar a pint and twice the quantity of common soft soap; stir well together and pour sufficient hot water upon it to dissolve, and mix it; this will make about two pailfuls of the tar water. With a fine sprinkler, or with a syringe, wet the bushes thoroughly. This same mixture is better for rose bushes than soap alone, or whale-oil soap, as I have tried both." Mr. W. states that some of his neighbors find that coal ashes, put upon the soil around the currant bushes, keep them free from the caterpillars. This may be owing to the fact that a layer of ashes makes a barrier through which the parent insect cannot penetrate when it leaves its winter quarters in the ground.

Half-hardy Passion-flowers.

The most beautiful species of Passion-flower (*Passiflora*) can only be grown in the greenhouse; but there are two which can, with a little care, be kept in the ground through the winter, and though not so showy as the more tender ones, are sufficiently beautiful and interesting to repay the little trouble they require. The species referred to are the Blue Passion-flower (*P. cærulea*), from Brazil, and the Flesh-colored (*P. incarnata*), which is native from Virginia southward. These are vines, climbing twenty feet or more by means of tendrils, and producing lobed leaves and pretty flowers that are remarkable in structure. The one figured is the Blue Passion-flower, and shows the general characters of the flower in all the species. There are five petals and as many divisions of the calyx, which last are colored on the inside and give the flower the appearance of being composed of ten petals. Within the petals is a conspicuous crown of rays, or thread-like bodies, which adds much to the showiness of the flowers, as it is usually more strikingly colored than the petals. Then we have five stamens and one pistil, which bears three styles with large button-like stigmas at their extremities. The showy crown, which is composed of one or more rows of slender threads, has been a puzzle to botanists. Some regard the rays as modified stamens, and it is stated that anthers have been produced upon them. The fruit is a large berry with a tough rind, containing numerous seeds imbedded in a pulp. The fruit of many species is edible; that of our native Flesh-colored one is known as "Maypops," and that of a South-American species is the much esteemed Granadilla.

The name Passion-flower was given by the early South-American missionaries who saw in different parts of the plant symbols of the crucifixion. The three styles were to them the three nails, two for the hands and one for the feet; the five stamens were the five wounds; the rays the crown of thorns; the ten parts of the calyx and corolla the Apostles; Peter who denied and Judas who betrayed, being absent; the tendrils represented the scourges, and the lobed leaves the hands of the persecutors. It does not need any such exercise of the imagination to make the Passion-flower beautiful; and it deserves to be classed with our most desirable climbers. Plants of the Blue species are to be had of the florists; it may be kept as a green-house plant, or, planted out to ornament a veranda or trellis. The stem is killed by the frost, but if the root has a good covering of leaves over it, it may be preserved through the winter. In warmer countries it is hardy, and forms a trunk as large as one's wrist. The native species is rarely seen in cultivation, probably for the reason that it, like many other native plants, is more difficult to procure than the exotic ones. It is, however, well worthy of a place in the garden. Another native species, found as far north as Pennsylvania, is the Yellow Passion-flower (*Passiflora lutea*), which has greenish-yellow flowers about an inch broad.

BLUE PASSION-FLOWER—(*Passiflora cærulea.*)

Pot-layered Strawberries.

The propagation of Strawberries by striking their runners in pots has already been recommended in these columns, but another season's experience has so impressed us with the superiority of this method, that we desire to call attention to it with more emphasis. It is not a process that commends itself to those who grow strawberries by the acre, but for the amateur it is of the greatest convenience; as it not only renders him independent of the season, but saves him a year's time. Let us suppose a runner roots at the present time in the soil of the bed. If taken up and planted out in the fall, it may bear a few berries next year, but not a full crop until the spring of 1872. If put out in the spring of '71, it will not bear until the spring following. If the same layer be rooted in a pot, and as soon as it is fairly established, it is turned out of the pot, say in July, it will make a strong plant before winter, and bear well the next season. One great advantage in using pot-layers is, that the roots are undisturbed, and the planting may be done in the hottest weather.—The operation of pot-layering is a very simple one. Prepare a compost of good garden soil, and well-decomposed manure, letting it be light, rich, and fine. With this fill small pots; some use them as large as 4 inches across, but the size known in the trade as verbena pots are sufficiently large. These may be had at the potteries at about a cent a piece, if many are taken. The pots of compost are sunk in the soil of the bed under a runner, before it has taken root and become fixed in the bed. The pots are plunged quite down to their rims. It will be found necessary to lay a small stone or clod on the runner to keep the wind from moving it out of place, or to fix the runner by pressing it into the soil of the pot.—Roots will be formed rapidly in the rich compost in the pots, and when the plant has become well rooted, it may be separated from the mother plant, and set in the bed where it is to fruit. The illustration shows the manner in which the pots are placed. After a runner takes root, it will throw off another, and this another, and so on. When but few plants are wanted, it is well to pinch off the secondary runners, and allow only those from the mother plant to take root.

STRIKING STRAWBERRY RUNNERS IN POTS.

THE HOUSEHOLD.

☞ *(For other Household Items, see "Basket" pages.)*

A Jelly Bag.

The brilliancy of jellies is secured by careful filtering through a flannel bag. The old chemists under the name of Hippocrates' sleeve made use of the same thing that we call a jelly bag. It is a conical bag of stout flannel, shaped as in the figure, stretched upon a hoop. One 14 inches deep, and 7 inches across the mouth, is a convenient size for ordinary use. The seam should be double stitched to make sure that no liquid will pass through it. As the bag requires to be washed, it ought not to be permanently attached to the hoop. A broad hem may be made at the top into which a wire or whalebone hoop may be inserted, or the mouth of the bag be finished by sewing a cord to it to make a strong edge. It can then be easily sewed to a hoop each time it is used. In straining jellies which solidify when cold, the bag should be hung near the fire. The first portion which runs through will be turbid, and should be poured back into the bag.

About Canning Fruit.

So much has been said about preserving fruit in air-tight cans or jars, that we are surprised that the inquiries still come for descriptions of the process. As our circle of readers widens, it each year includes new ones who do not seem to have practised this admirable household economy. Only a short time ago a letter came from Africa, saying that the writer had seen peaches from America put up in a thin liquid, and asking if we could find out how it was done. In our own families the canning of fruit is a matter of course, and we advise all who have never tried it to do so once; they will be sure to keep up the practice afterwards.

The Principle should be understood, in order to work intelligently. The fruit is preserved by placing it in a vessel from which the external air is entirely excluded. This is effected by surrounding the fruit by liquid, and by the use of heat to rarify and expel the air that may be entangled in the fruit or lodged in its pores. The preservation does not depend upon sugar, though enough of this is used in the liquid which covers the fruit to make it palatable. The heat answers another purpose; it destroys the ferment which fruits naturally contain, and as long as they are kept from contact with the external air they do not decompose.

The Vessels in which fruits are preserved are tin, glass, and earthenware. Tin is used at the factories where large quantities are put up for commerce, but is seldom used in families, as more skill in soldering is required than most persons possess. Besides, the tins are not generally safe to use more than once. Glass is the preferable material, as it is readily cleaned and allows the interior to be frequently inspected. Any kind of bottle or jar that has a mouth wide enough to admit the fruit and that can be securely stopped, positively air-tight—which is much closer than water-tight—will answer. Jars of various patterns and patents are made for the purpose, and are sold at the crockery and grocery stores. These have wide mouths, and a glass or metallic cap which is made to fit very tightly by an India-rubber ring between the metal and the glass. The devices for these caps are numerous, and much ingenuity is displayed in inventing them. We have used several patterns without much difference in success, but have found there was some difference in the facility with which the jars could be opened and closed. The best are those in which atmospheric pressure helps the sealing, and where the sole dependence is not upon screws or clamps. To test a jar, light a slip of paper and hold it within it. The heat of the flame will expand the air and drive out a portion of it. Now put on the cap; when the jar becomes cool the air within will contract, and the pressure of the external air should hold the cover on so firmly that it cannot be pulled off without first letting in air by pressing aside the rubber or by such other means as is provided in the construction of the jar. When regular fruit jars are not used, good corks and cement must be provided.

Cement is made by melting 1¼ oz. of tallow with 1 lb. rosin. The stiffness of the cement may be governed by the use of more or less tallow. After the jar is corked, tie a piece of stout drilling over the mouth. Dip the cloth on the mouth of the jar into the melted cement, rub the cement on the cloth with a stick to break up the bubbles, and leave a close covering.

The Process.—Everything should be in readiness, the jars clean, the covers well fitted, the fruit picked over or otherwise prepared, and cement and corks, if these are used, at hand. The bottles or jars are to receive a very hot liquid, and they must be gradually warmed beforehand, by placing warm water in them, to which boiling water is gradually added. Commence by making a syrup in the proportion of a pound of white sugar to a pint of water, using less sugar if this quantity will make the fruit too sweet. When the syrup boils, add as much fruit as it will cover, let the fruit heat in the syrup gradually, and when it comes to a boil ladle it into the jars or bottles which have been warmed as above directed. Put in as much fruit as possible, and then add the syrup to fill up all the interstices among the fruit; then put on the cover or insert the stopper as soon as possible. Have a cloth at hand dampened in hot water to wipe the necks of the jars. When one lot has been bottled, proceed with more, adding more sugar and water if more syrup is required. Juicy fruits will diminish the syrup much less than others. When the bottles are cold, put them away in a cool, dry, and dark place. Do not tamper with the covers in any way. The bottles should be inspected every day for a week or so, in order to discover if any are imperfect. If fermentation has commenced, bubbles will be seen in the syrup, and the covers will be loosened. If taken at once, the contents may be saved by thoroughly reheating.—Another way is to prepare a syrup and allow it to cool. Place the fruit in the bottles, cover with the syrup and then set the bottles nearly up to their rims in a boiler of cold water. Some wooden slats should be placed at the bottom of the boiler to keep the bottles from contact with it. The water in the boiler is then heated and kept boiling until the fruit in the bottles is thoroughly heated through, when the covers are put on, and the bottles allowed to cool. It is claimed that the flavor of the fruit is better preserved in this way than by the other.

What may be Preserved.—All the fruits that are used in their fresh state or for pies, etc., and Rhubarb, or Pie-plant, and Tomatoes. Green Peas, and Corn, cannot be readily preserved in families, as they require special apparatus. *Strawberries.* Hard-fleshed sour varieties, such as the Wilson, are better than the more delicate kinds. Directions for these, as well as for *Raspberries* will be found in a Basket item.

Currants need more sugar than the foregoing. *Blackberries* and *Huckleberries* are both very satisfactorily preserved, and make capital pies. *Cherries* and *Plums* need only picking over. *Peaches* need peeling and quartering. The skin may be removed from ripe peaches by scalding them in water or weak lye for a few seconds, and then transferring them to cold water. Some obtain a strong peach flavor by boiling a few peach meats in the syrup. We have had peaches keep three years, and were then better than those sold at the stores. *Pears* are pared and halved, or quartered, and the core removed. The best, high-flavored and melting varieties only should be used. Coarse baking pears are unsatisfactory. *Apples.* Very few put up these. Try some high-flavored ones, and you will be pleased with them. *Quinces.* There is a great contrast between quinces preserved in this way and those done up in the old way of pound for pound. They do not become hard, and they remain of a fine light color. Tomatoes require cooking longer than the fruits proper. See directions for these among Basket items. Any intelligent person who understands the principle upon which fruit is preserved in this way, will soon find the mechanical part easy of execution and the results satisfactory

Sleeping and Eating as related to Health.

BY FAITH ROCHESTER.

How many healthy men and women can you count on your fingers?—grown up persons who have no dyspepsia, rheumatism, bowel diseases, headaches, nervousness, nor any other of the long list of ills that flesh is heir to. These "visitations of Providence" are penalties for violating the laws of health; or, they are the harvest that results from the sowing of bad seed in the way of wrong habits. For the old sinners there is not much help nor hope; but how shall we save the children from the diseased and enfeebled condition of their parents? It is time for American women to take the matter in hand. It would be ludicrous if it were less sad,—the idea of such a set of feeble and nervous creatures as American women generally are, setting themselves up as the guardians of health! But all must agree that this properly falls within the natural "sphere" of woman. It is a household matter. For, you see, we women almost have it in our power to make or ruin the health and usefulness of the best and wisest citizens by our management or mismanagement of our homes. Mental and moral power depend largely upon the physical condition; and this depends upon the food we eat, the rest and exercise we take, the air we breathe, and the cheerfulness of our homes. Good sleep is essential to health. Both brain and body need plenty of rest to keep them in good working condition for a series of years. Nothing makes young women grow old-looking so fast as keeping late hours. Nine o'clock is the old-fashioned, country bed-time; and it is the best bed-time in a majority of cases. Of course the little children should go earlier. If they go to sleep in a happy frame of mind it will help much toward refreshing slumber. A cheerful "good night," and an affectionate kiss (if there is sufficient spontaneity about it to make it worth anything) are decidedly *healthful* for the little ones.

The skin is full of pores, through which impurities are thrown off from the system. This exhalation goes on more rapidly during sleep than at any other time. For this reason, if for no other, the body should be washed after a day of sweating work or play in the dust. Attention to this will do much in the way of preventing bowel diseases and fevers. On account of the exhalation of impurities through the skin during sleep, the bedding should be well aired, each day, before making up.

I have nothing to say about feather-beds. None of our family like them; but I would willingly provide one for any elderly person to whom habit had made it seem a necessity. The spring mattress is generally satisfactory, but it needs a warm mattress over it in winter. For my own use I should not ask anything better than a bed of well-cured corn-husks, or, a good straw bed covered with a rather thin cotton mattress or a thick comforter. Such a mattress can be easily washed. Corn-husks wear longer than straw, make less dust, and are more elastic. A *clean* hair mattress is an excellent bed; but it seems desirable to use bedding that can be cleansed without much trouble. The hair of a mattress can be washed in cool water, dried in the sun, and put back in a clean tick. With a board frame the size of your mattress, fastened up like a quilting frame, and with an upholsterer's needle, you can make, or remake, your own mattress. We made one so; but I always dread to take hold of the thick heavy mattresses in taking care of sleeping rooms. Feather pillows remain in favor after the pretty general "going out" of feather-beds—which is unreasonable, since the head should always be kept cool. An evenly-tacked, hair pillow suits me

best. It gets hard after several months' use, but it is only a half-hour's task to pick up the hair and tack it in again. It is horrible to sink an infant's head in a soft, feather pillow, as cradle-babies are often treated. My babies have never seemed to need any pillow at all on a good mattrass; and, as I often sleep very comfortably without one myself, I am not inclined to give them pillows so long as they seem contented without. High pillows are always objectionable; producing round shoulders and curved spines. A straight position of the body in bed is essential to the healthy action of the lungs, heart, and stomach during sleep. I can remember how I used to curl up almost double in order to keep warm on winter nights. I used to throw my woolen dress and skirt on the outside of the bed over my shoulders, and then draw up my feet to get them under its warmth, while all of the time extra quilts and blankets lay piled in the closet close by. Of course such a position is not good for the circulation of the blood, or for its purification by the free introduction of fresh air to the lungs. Children should not be allowed to go to bed with cold feet. It is a foolish habit to rely on a soapstone or flat-iron in bed; and there will be no need of it if the feet are warmed before going to bed, especially if warmed by exercise. Much "toasting" is not good for any part of the flesh. Cold feet often result from indigestion and lack of exercise. Tight shoes and tight gaiters also cause cold feet by preventing a free circulation of the blood. A cool foot bath (not *cold*, but comfortable) and a good rubbing afterward, before going to bed, are better than a soapstone to keep the feet warm.

Not only should sleeping rooms and beds be well aired daily, but the rooms should always be ventilated during the night. It is best to have two openings on different sides of the room, so arranged that the bed does not stand in the draft; but any opening through which fresh air can get into the room is better than none. In a part of the country where mosquitoes abound, it pays, in every way, to have netting in at least one sash of each window. If you cannot do better, frames can be made of pieces of lath nailed together with the netting tacked on with tape (or narrow strips of cloth) and small tacks. As it grows dark all the mosquitoes that get into the room fly towards the light, and you can easily kill them on the netting before bringing a lamp into the room. Healthy sleep is almost impossible where insects of any kind have a chance to worry and devour.

Nothing would drive me so near despair (as a house-keeper) as to find that bed-bugs had got a lodging in the walls of my house. In a part of the country where they are common among your neighbors (and let all movers into a new locality take warning) "eternal vigilance is the price of" exemption from the nuisance. They come in books and papers that you lend, and they come in the garments of your visitors. Bats bring them too; and this is another reason for keeping netting in the windows when bats are abroad. Kerosene oil is a good poison for these insects, applied to the joints of the bedstead. So is a strong brine of salt and water; or corrosive sublimate; but kill every one you see, and look sharp.

When we get thoroughly civilized I believe we shall all have a good bed apiece, and never habitually sleep even two in a bed; but three in a bed are always too many, even when one is a baby—*especially* when one is a baby; it is quite too much for the little one.

Old people almost always awake earlier than young persons do, and are apt to feel quite out of patience with the morning naps of later sleepers. It is unfair; for the growing boys and girls who are in their teens seem to need more sleep than any other class, except the very little ones. If they must rise early they should be particular to go to bed early. Late suppers interfere very much with refreshing sleep. I don't mean party suppers, with their rich cakes and confectionery,—but farmers' suppers, which are often deferred until the day's work is all done, with an idea of saving time. The body is then so weary and the stomach so exhausted that good digestion is almost impossible; and yet this late meal is usually heavier than an earlier supper would have been. Broken rest, bad dreams, nightmares, and bad tastes in the mouth on awakening, are the natural results of late or heavy suppers. If the stomach gets through its hard work and can rest during sleep, there is no trouble about lying on the back. Sick headaches may often be traced to heavy meals when the body was too much exhausted to digest them properly. With an early breakfast and dinner at twelve, supper should come as early as half-past five or six o'clock at the latest.

Nearly all physicians agree that there is no more fruitful source of disease and death than intemperance in eating. It makes a great deal of difference *what* we eat, but quite as much difference to our good health *how* we eat; and I think it is the plain duty of parents to look after their children's habits in this respect. Those children are fortunate who early get accustomed to plain fare and regular meals. With three meals a day there is no necessity for any extra lunches. If any mother thinks her children an exception to this rule, it would be well for her to experiment a little. Have it understood that nothing but plain, unbuttered bread is to be eaten between meals or away from the table, and very likely the child who eats little at the table and gets hungry for cookies and pieces of pie between meals, will go hungry until the next meal rather than to eat bread alone. And yet there is no cruelty in this; for genuine hunger can be satisfied by plain bread. I have seen this tried, and think it a good way to break up a bad habit and save our children from dyspepsia.

There has been considerable talk in the health journals lately, about drink at meals—whether warm drinks or cold water was best. I have wanted to put in my word, and here it is. There is very seldom any necessity for drinking at all at meal times. We have learned this pretty thoroughly, and quite accidentally. When we "set up house-keeping," one half of our family of two was accustomed to use tea and coffee. The other half had an aversion to them. Neither was willing to be a law-maker for the other, but the subject was often pleasantly discussed. I was willing to make tea and coffee for my husband as long as he believed in their use; but he never felt quite comfortable taking these beverages alone. I could not conscientiously join with him, I saw so many miseries in the future as possible results of such a habit, and besides, we needed to economize. "Then let us drink water," said my husband. Soon after this decision, our little round table became somewhat crowded by an additional plate, and we began to set the water-pitcher and tumblers on an adjacent stand. I noticed that when I passed the water to one of my companions it seemed to suggest thirst where none had been previously felt; and, knowing that it is always unhealthy to wash down our food instead of chewing it thoroughly and mingling it well with the secretions of the mouth provided for the purpose of aiding digestion, I concluded to offer no one water until it was called for. This wrought a speedy change in our habits, and we were all surprised but well satisfied. For several years we have not been *in the habit* of drinking anything at meals, and think nothing about it. Between meals we drink water as thirst requires. When we have no outsiders with us, we never think of putting water on the table, though in the way of variety we often have milk, and once in a great while, tea or coffee. I notice that when I put water on the table for one person, others are immediately seized with thirst; but no young person stays with us long without unconsciously forming the habit of eating without drinking. I think our children will thank us, by and by, if we teach them to eat slowly, without drinking, and to chew their food thoroughly.

It goes far towards making food "set well" to eat it with no fear of evil results. Some people fancy that the chief reason why dyspeptics suffer from their food is their constant worry lest this or that will hurt them. There is some truth in it; but how can the poor sufferers help worrying at many of our tables, where healthful food is seldom found? I have known dyspeptics who could get along very comfortably at home, but who felt a great dread of taking a meal away from home, lest the only bread should be hot, shortened biscuit, and nothing else to satisfy hunger but rich cakes and preserves. We ought always to have plain, cold bread on our tables, and other food plainly cooked. For my own part, I feel responsible for most of the "general health" of those who eat at our table. If any of them suffer from indigestion in any way, I cannot help studying upon the case to find the probable cause and the most natural dietetic cure. There is nothing more wholesome than good, ripe fruit, *taken with our meals*. People suffer from eating fruit because they do not realize that it is *food*; and they load the stomach and tax the bowels with it when they are not in the least need of food, merely to gratify the taste.

Dear, *American Agriculturist* girls, if you could only for one moment realize your power to help this nation, and save its people from sickness and suffering, I am sure you would henceforth do your best to become strong and healthy, and try to learn every way of promoting the real benefit and comfort of those associated with you. Don't think of getting married, or of going to house-keeping, until you have studied physiology and household chemistry—some practical works on the subjects. I want to recommend Catherine Beecher's excellent works on Domestic Economy. There is one "old maid," at least, whose children (in domestic knowledge) all over the land "rise up and call her blessed."

Currant Jelly.—There is probably no jelly that we so seldom see of a fine quality as currant. One difficulty arises from allowing the fruit to become over-ripe. The constituent of the fruit which causes the juice to solidify into a jelly is most abundant as soon as the berries are fairly ripe. If left until later, a long boiling is required, which injures the color and flavor. The following process is commended by Mr. Harrison. "Boil the strained juice in a bright saucepan and skim until no more scum rises; while hot, strain quickly through a fine flannel bag, stir in rapidly one pound of finely sifted, white sugar for every pint of juice, and as soon as thoroughly dissolved, pour into cups. When cold, paste on paper covers, and set in a cool, dark, dry place.

Fruit Juices.—The juices of raspberries, pineapples and other fruits, are useful for flavoring ice-cream and similar purposes. The juice can be readily preserved by bottling. Express the juice and put it in bottles; set the bottles in a cold boiler with a board or grating under them to prevent contact with the bottom of the boiler. Heat up the water and continue at the boiling point until the contents of the bottles are heated through. Cork the bottles while hot, seal and keep in a cool place. The bottles should not be so large as to contain more juice than enough to use at once, as it will not keep long after being opened.

Aromatic Mustard.—Our request for recipes for preparing mustard after the manner of the Germans and other Europeans, has been replied to by several. The following is from Mrs. "W. S. K.," Rochester, N. Y.: "To 1 quart pure cider vinegar, add 2 tablespoonfuls each of ground allspice and cinnamon, 1 do. of cloves, 3 do. brown sugar, 4 do. salt, and 3 large onions cut fine. Boil until the strength is well extracted, say ½ or ¾ of an hour; then strain the vinegar, boiling, on to 1 lb best English mustard, and stir until it is perfectly smooth. If not thin enough, put more vinegar to the same spices, boil, and mix." This keeps well in a fruit jar, and improves by age. Boiling the vinegar for the length of time directed above would weaken it very much. The flavor of the spices would be extracted equally well by keeping the mixture nearly boiling hot in a covered vessel.... Another formula is given by Mrs. "E. D. C.," Meadville, Pa.: "4 tablespoonfuls of ground mustard, 1 do. flour, 1 do. sugar, 1 teaspoonful salt, 1 do. black pepper, 1 do. cinnamon, 1 do. cloves. Mix smoothly with boiling vinegar and let stand several hours before using. It may be thinned with cold vinegar. Will keep any length of time."

BOYS & GIRLS' COLUMNS.

Rambles in China—Chopsticks.

BY "CARLETON."

I wonder how the young folks of the United States would get on at dinner if they were to try to eat boiled rice with chopsticks instead of a spoon or a knife and fork! I should like to see you attempt it my young friends. But in imagination I hear you all asking this question, "*What are chopsticks?*"—Well, they are small sticks a little longer than a pen-holder and about as large. Those used by poor people in China are made of bamboo, while the wealthy people use those manufactured from ebony or ivory, or of silver and gold. They hold them very adroitly between the first and third fingers of the right hand—separated by the second finger and steadied by the thumb. If you wish to gratify your curiosity in the matter, just whittle out two sticks ten inches long and as large as a pen-holder, and the next time you have boiled rice for dinner see how you will get on; or you may pick up kernels of wheat for practice.

The Chinese handle them just as easily as we do our knives and forks. They would laugh to see our manœuvring with the sticks, but we should have the fun on our side if they were to sit down to our dinner table; they would make awkward work of it....."*Don't they use Knives?*"—Not to eat with. In preparing their food they whip a knife from their pocket and use it for cutting up a chicken or a puppy.....*A puppy!*—I don't wonder you stare to hear it. It is well for your pet, who looks up into your face, licks your hand and wags his tail when you speak to him, that his master lives on this side of the globe, instead of on the other side, for he would not be permitted to enjoy long life in barking at the hens, in showing his teeth and putting on airs, but he would come to an inglorious end in a stew-pan! A Chinaman, though, might think it glorious. You would see some strange things were you to visit the land beneath your feet, especially in the eating line. Eating-houses and hotels in the great cities are more numerous than they are in New York or Philadelphia. They have traveling eating-establishments. You may see what they are by looking at the accompanying picture. The man who owns this establishment has it very ingeniously constructed. The large pole,—or handle of the huge umbrella,—is made of bamboo, which, though it is large, is strong, yet light, the bamboo being hollow. He sticks the lower end into the ground. The arms are also of bamboo, the ends set against the pole are inserted into notches which keep them in place. Loops in the edge of the canvass hold the outer ends of the braces. This great umbrella can be spread in two minutes, or it can be taken down and rolled up quite as quickly. The pedler of puppy stew walks through the street with a broad, shallow basin filled with the food already cooked, on the top of his head. He carries a small sheet-iron furnace on his back, and his big umbrella on his shoulder. He finds a place to suit him where customers are plenty, sets up his umbrella, lights a charcoal fire in his furnace, and in a few minutes the piece of fish, chicken or dog, mixed with rice, is warming and steaming in the pan. He takes his bowls and chopsticks from a basket and in a few minutes is ready to serve the hungry crowd. For a cent you can get a bowl full of nice, hot, dog stew!

See how that old fellow in the picture sitting upon the ground facing us, relishes it! The woman with a bowl in one hand and her money in the other, looks as if she was going to sit down to a splendid dinner. You see that she has a child on her back. It is in a bag..... *What a funny way to carry babies!*——When I was in China I saw a great many babies in bags. If they cry, the mothers quiet them by jumping as high as they can, which gives them such a thorough shaking up that the little creatures are glad to hush their crying.

We are not to think that all Chinamen live on puppies, cats, and kittens; it is only the poorest people who are obliged to live on such food. You would not be able to obtain much beef in China; but in the provision shops are excellent hams—also, ducks, geese, chickens, and fish; and in the vegetable markets you can always find a supply of potatoes, beans, peas, and likely you will find all of those in the bowl of stew which the pedlers sell.

To eat after the common manner you must hold the bowl to your lips and poke the food into your mouth; but if you would be genteel, you must pick up the bits of meat, the beans and the kernels of rice with the chopsticks, and carry them steadily to your mouth, and then drink the broth. If you want some fun you can have it without going to China in search of it, but in your own home, eating dinner with chopsticks. Try it.

The picture gives an out-door scene; but if we were to go into the house of a wealthy Chinaman and were invited to dinner, we should be three or four hours at the table, and have at least three hundred different dishes containing food placed before us! I dined one day with a mandarin—or rather we had only a lunch—and there were so many dishes, and such a variety of food that I lost all reckoning of the number. First we had roasted pumpkin seeds, then drank some cherry cordial; then ate some sweet cakes and drank several cups of delicious tea—not such meadow-hay stuff as we get in the United States—but the very best China affords. Then the waiters brought in a great variety of dishes. Some of the food was sweet to the taste and good, and of other dishes a smell satisfied us. We should have had an uncomfortable time if we had undertaken to eat heartily of every dish. To be genteel in China you must only taste and nibble a little of everything brought on by the waiters. That is no light affair at a great dinner where three hundred kinds are served for the guests. The Chinese drink a great deal of tea at their dinner parties, but do not have wines or liquors. You hear no popping of champagne corks. The guests are able to walk straight and talk straight as well, which some people in this country are not able to do after dinner. We think of the Chinese as being uncivilized; but they do not make beasts of themselves by getting drunk, and then, in their drunkenness commit horrible crimes by beating their wives and children, or shooting their best friends. The Chinese are wise enough not to drink whiskey, brandy, or any such liquors; and in that matter I hope all who read the *Agriculturist* and those who do not, will, in this respect, follow the example set by the inhabitants of China.

CHINESE EATING WITH CHOPSTICKS.

Let the Birds'-Nests Alone.—It is thoughtlessness that makes a boy rob a bird's-nest. If he would stop a minute and think how unkind it was, and how little good the prize would do him, he would never take a bird's egg nor break up a nest. A boy who destroys eggs and nests does not deserve to have any fruit. Do you know that just in proportion as birds diminish, insects increase, and as insects increase, the fruit diminishes? In many parts of the country the insects have it all their own way, because there are no birds to keep them in check. Recollect then, no birds, no fruit.

Answers to Problems and Puzzles.

381.—The 19 trees are to be planted as shown in the annexed diagram, where the dots represent the trees and the lines the directions in which the rows may be counted to make nine.

382.—The 40 lb. weight must be cut into pieces weighing 1, 3, 9, and 27 lbs.; by the use of these any number of pounds from 1 to 40 can be weighed. For example, to weigh 25 lbs. the 27 lb. and 1 lb. are put into one scale and the 3 lb. into the other.

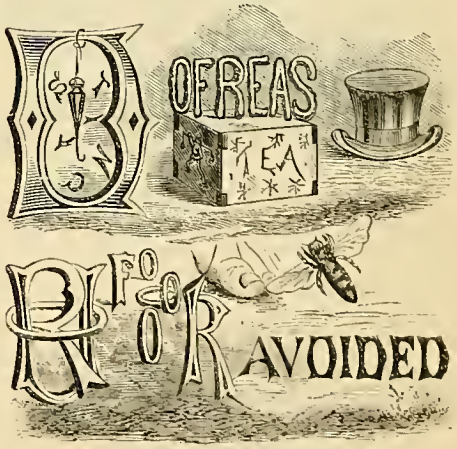
383.—At the commencement the men sold 7 eggs for a cent. The 1st sold 7 cents' worth, and the other 4 cents' worth, and the 3d 1 cent's worth. Afterwards they raised the price of their eggs to 3 cents apiece. It will be seen that by selling their eggs at this price, each received 10 cents.

384.—Think before you speak.—Th-ink-Bee 4 n's-peak.

385.—A life beginning in pleasure and ending in misery is often the fate of the inconsiderate.—Ale I F E bee-gin-in-G-in P Lease Ewer and n-d-in-g in miser-y is o F 10 thief S of the in c on S I D R S.

The following have sent correct answers since our last: R. M. Downie, W. P. Brown, M. F. Herron, Liss Hall, L. E. Shriver, C. Hicods, Louis Fox, E. S. Vacher, J. P. Treece, O. A. Towne, W. W. Cutter, M. H. Sue, B. Manifold, Lizzie M. Gilchrist, A. Garrett, W. Kingsbury, C. A. Sage, J. H. Snyder, Geo. M. Hemmingway, G. D. Bunyan, "T. H. J.," N. H. Rice, T. Lansdale, M. B. Eshleman, G. Edgar Leach, J. Ferris, A. M. L. Golder, L. P. Hitchcock, Belle Greeley, Isaac Shaver, Jas. H. Williamson.

New Puzzles to be Answered.



No. 386. *Illustrated Rebus.*—A statement that cannot be controverted.

No. 387. *Illustrated Rebus.*—A poetical quotation, which, unfortunately for human nature, is too true.

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CHINESE KITE-FLYING.—*Drawn and Engraved for the American Agriculturist.*

No. 388. *Age Puzzle.*—A boy on being asked his age replied that ½ and ¼ his age and 20 more would make a sum three times his age. How old was he?

No. 389.—A letter was sent addressed as here shown. Who was it intended for and where did the man live?

Wood
I
Mass

No. 390.—A man had three bushels of corn to grind by horse-power, and he had three horses; how could he arrange so that each horse would grind two bushels of corn?

A Very Old Record.

I suppose all of you boys and girls know that 245 Broadway is directly opposite City-Hall Park. It isn't much of a park now that the new Post-Office has taken off one end and new city buildings are filling up the other end. These city buildings contain all the old records dating away back to "early times." But the record I saw the other day was older than even these musty papers and parchments—it was a story of what happened before the city buildings were erected, before new New York was New Amsterdam, even before Columbus went on that yachting excursion of his. It was not the record of any man's doings, but the story of the work of the sea; how its waves had rolled and cast up sand, now fine and now coarse, now of one color and now of another shade; and how the sand was piled grain by grain and layer by layer, until the land was formed upon which the busiest and densest part of this great city now stands. The way this record came to be exposed was this. In laying the foundations for the new Post-Office, they dug an enormous cellar in the park right down some thirty feet, and on the perpendicular sides of this excavation could be read the story of what the sea had been doing long, long ago. Some of you may think that the sea didn't make the sand-heap upon which the lower part of the city stands. The few feet near the surface show man's work; there was a layer of soil, another of rubbish, another of gravel—several layers showing the changes that former inhabitants had made; and these did not more plainly tell the story, that at one time there was filling with earth, and at another a dumping of rubbish, and at another a covering with gravel, than did the layers below record what the sea had done. Now if I had called this a "geological talk" you would not have cared anything about it. All that geologists do is to observe the appearances the earth presents and then try to give an explanation of them.—Though every person, who was living when the dirt and rubbish were placed just below the present surface, may now be dead, we have every reason to believe that somebody put it there, as it looks exactly like some similar material that we have ourselves seen deposited; so the sand layers below looked exactly like the sand that we may find upon the sea-beach, that was thrown up only a few days ago; and as we know of no other way in which sand could be arranged to look as this did, we are warranted in calling it the record of what the sea did more years ago than we are able to guess. WILL WARREN.

Kite-Flying in China.

Carleton's description of the way in which the curious old Chinamen amuse themselves by flying kites, no doubt interested every boy. We have come across a picture, in which the artist represents the scene as he saw it, and give it above. Between the report of our friend Carleton given with the pen, and the report of the artist made with a pencil, you will have a very good idea of one of the customs of a people whose ways are so unlike ours. After all, some of our people who are no longer boys do some kite-flying—only it takes the shape of fast horses, stock gambling, and various other shapes which are not quite so innocent as those indulged in by the pigtailed old people in the picture. There is considerable sport in flying a kite, and we know a learned man of seventy years, who enjoys it as much as any boy.

Do You Know How to Swim?

Every boy and girl should know how to swim. It is generally thought to be an accomplishment more proper for boys than for girls; but there is quite as much need that girls too should know how. It is great sport, and the boys should not have all the fun to themselves. But as a matter of security against accidents, it is very desirable that every one should be able to swim, or at least, to keep their heads above water. There is one proper time for young people to learn to swim, and that is—when your parents will consent to it. The judgment of older people should be taken in regard to the safety of the place in which to learn, and it is best for those who cannot swim to have an older person by, until they learn. In trying to swim, always let your progress be towards shore. Wade off until the water is up to your breast, and then try to swim to the shore, taking it calmly and not making too hard work of it. Of course the attempt should be made where the water gradually deepens, where the bottom is safe, and where there is no strong current. These are things that boys should not trust their own judgments about. When you have learned to swim without clothes, or at most bathing drawers, put on a pair of old pantaloons and try to swim with them. It will be found difficult at first, but it can be done; then try a shirt and vest, and, finally, shoes. But few persons learn to swim in clothing, and it is the most important thing about it. When one goes overboard by accident, he has no time to remove his clothing; and it is not well to wait until such an event happens before you find out how much more difficult it is to swim with clothing than it is without. It is not easy to give directions in swimming; the best way is to follow the instructions of some older friend, or of your parent. Try and be a good, straight-ahead swimmer, before you attempt any of the many fancy tricks. Learn to swim first, then to float, and then to tread water; these are the most useful; afterwards you may add as many extra styles as you choose.

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Besides the large agricultural productions of this section, the manufacturing interest is very extensive in the large towns, and is rapidly increasing.

The coal mines at Danville on this line are extensively and profitably worked, and FURNISH BUSINESS FOR OVER THREE HUNDRED COAL CARS at present, and MORE THAN TWICE THAT NUMBER WILL BE REQUIRED TO CARRY COAL ON COMPLETION OF THE REMAINING LINK.

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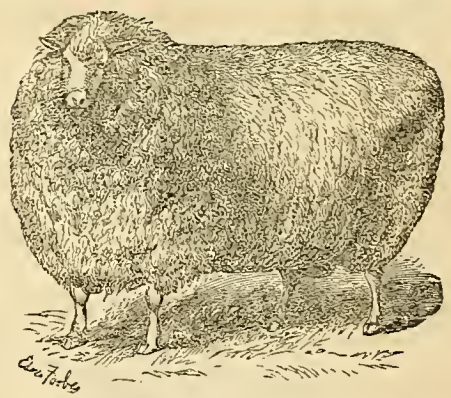

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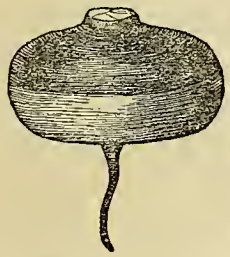

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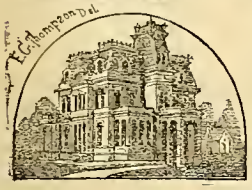

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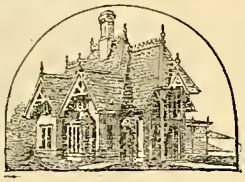

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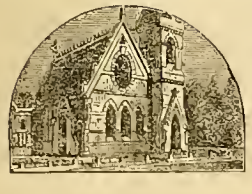

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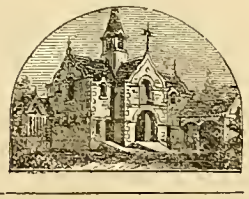

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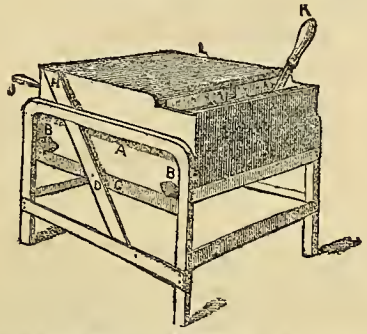

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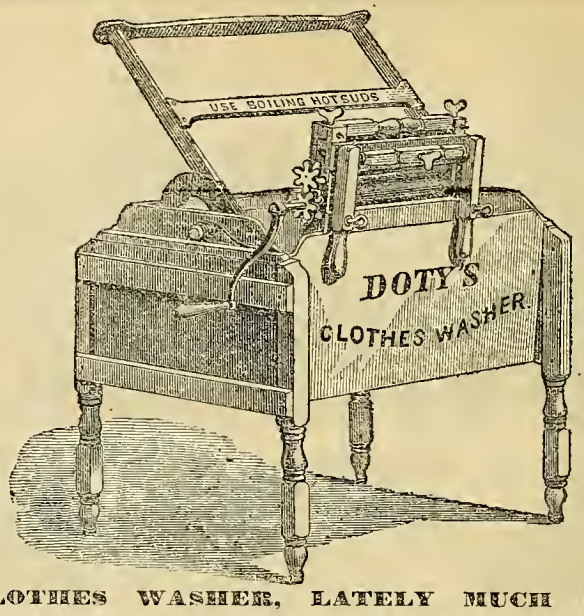

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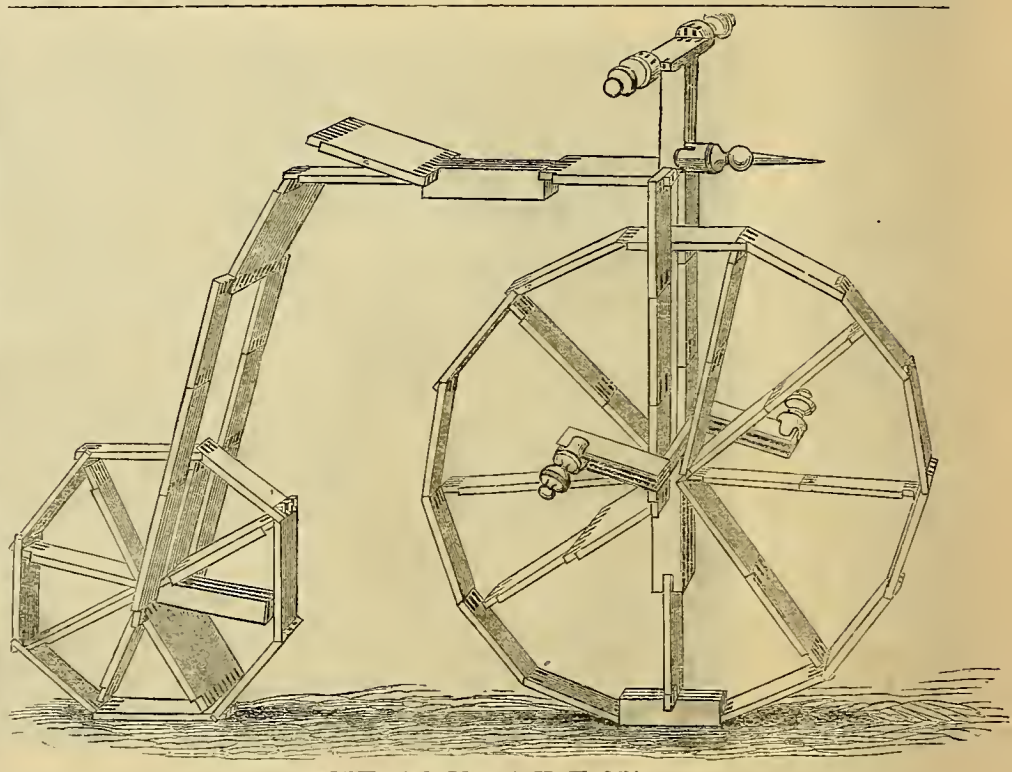

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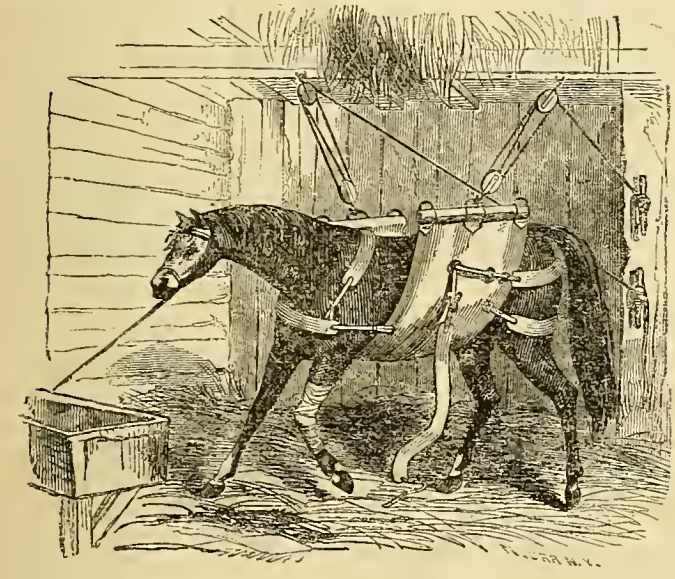

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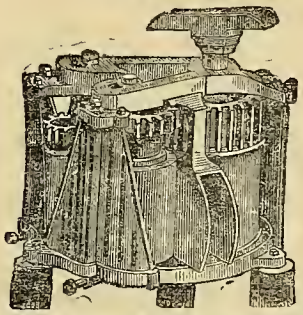

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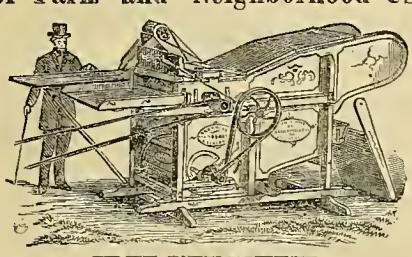

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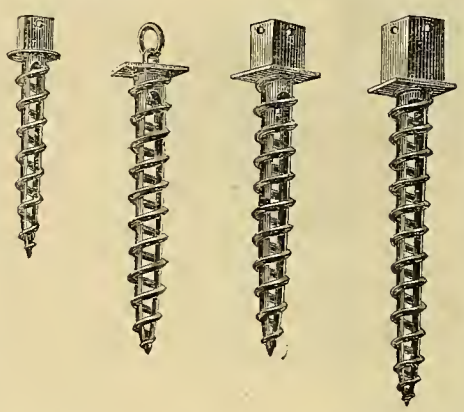

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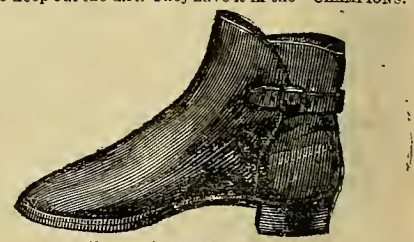

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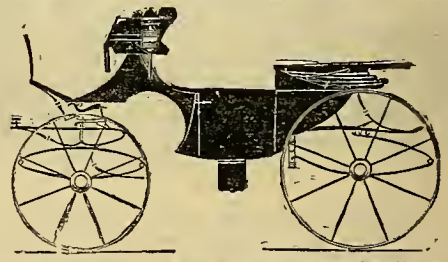

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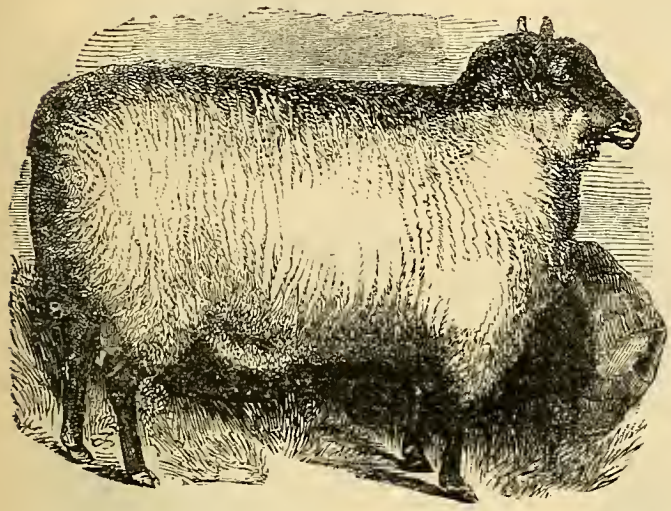

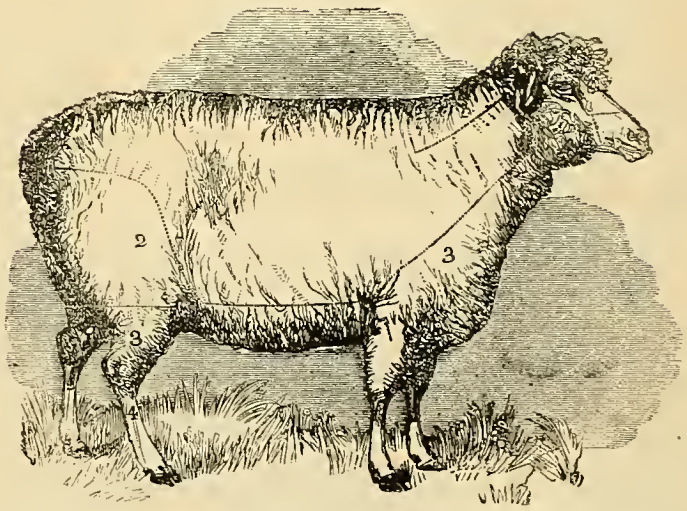

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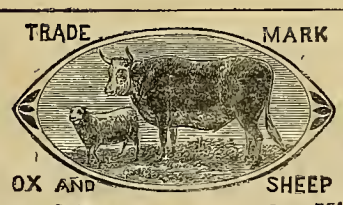

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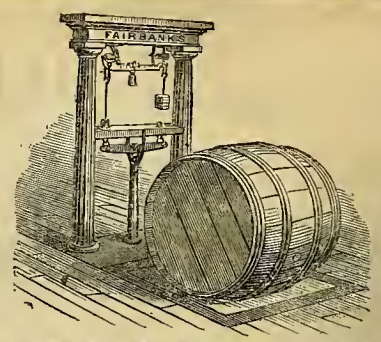

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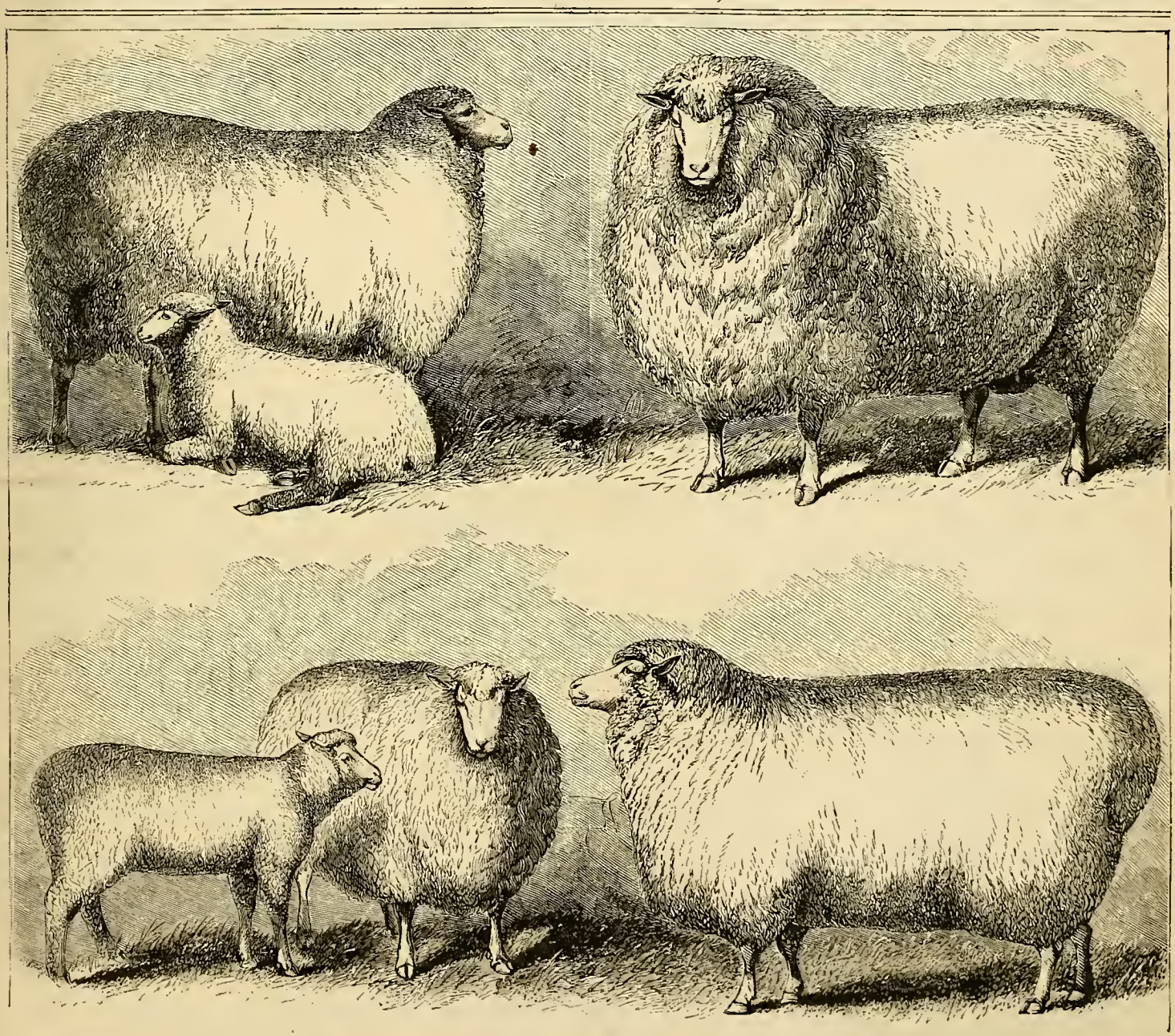

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THE MAPLE-SHADE COTSWOLDS IN THEIR FLEECES.—Drawn from Life by E. FORBES.—*Engraved for the American Agriculturist.*

Our readers will call to mind a picture we presented of this flock in October of last year, and it would be well for them to refer to that number of the *Agriculturist*. There, they were shown as they appeared soon after shearing—the wool being perhaps an inch long. Shortly after this engraving appeared, the entire flock was purchased by one of the proprietors of the *American Agriculturist*, as was previously noticed. It has had the best of care, and being in fine condition this spring, several of the animals stood for their likeness to Mr. Forbes, who has succeeded in presenting us beautiful and accurate pictures. The portraits now given show the animals just before shearing, covered with their long, silky fleeces, the staple of which varies from 10 to 14 inches in length. The change in the appearance of the sheep is very striking; and the two pictures exhibit the excellencies of long-wool mutton sheep very satisfactorily. We see in the one the real "Shorthorn carcass"—long, deep, broad, compact, with nothing superfluous,—nothing, which is not either essential to the sheep's well-being, or profitable to the butcher. In the other, the one now shown, we see the immense fleeces of valuable wool which they carry, and the noble lambs which they bear, and which are a source of such great profit in the spring. The above pictures were taken late in April, just before the shearing, which took place early in May. Such wool, unwashed, is quoted in the open market at 40 to 45 cts.; and grade Cotswold lambs sell in April and May for 20 to 25 cts. per pound on their feet, netting their breeders often over $10 a head. Now-a-days certainly no sheep are more profitable, or better worthy, either the attention of the breeder of thorough-bred stock, or of the farmer who raises mutton and lambs for the market.

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Back Volumes Supplied.—The back volumes of the *Agriculturist* are very valuable. They contain information upon every topic connected with rural life, out-door and in-door, and the last thirteen volumes make up a very complete library. Each volume has a full index for ready reference to any desired topic. We have on hand, and print from electrotype plates as wanted, all the numbers and volumes for thirteen years past, beginning with 1857—that is, Vol. 16 to Vol. 28, inclusive. Any of these volumes sent complete (in numbers) at $1.75 each, post-paid, (or $1.50 if taken at the office). The volumes, neatly bound, are supplied for $2 each, or $2.50 if to be sent by mail. Any single numbers of the past thirteen years will be supplied, post-paid, for 15 cents each.

Calendar for August.

Day of Month.	Day of Week.	*Boston, N. England, N. York State, Michigan, Wisconsin, Iowa, and Oregon.* Sun rises.	Sun sets.	Mon sets.	*N. Y. City, Ct., Philadelphia, New Jersey, Penn., Ohio, Indiana, and Illinois.* Sun rises.	Sun sets.	Mon sets.	*Washington, Maryland, Virginia, Kentucky, Missouri, and California.* Sun rises.	Sun sets.	Mon sets.
		H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.
1	M	4 52	7 20	10 8	4 56	7 16	10 7	5 0	7 11	10 7
2	T	4 53	7 18	10 35	4 57	7 14	10 36	5 1	7 10	10 36
3	W	4 51	7 17	11 8	4 58	7 13	11 10	5 2	7 9	11 12
4	T	4 55	7 16	11 42	4 59	7 12	11 45	5 3	7 8	11 48
5	F	4 56	7 15	morn	5 0	7 11	morn	5 4	7 7	morn
6	S	4 57	7 14	0 20	5 1	7 10	0 24	5 5	7 6	0 29
7	S	4 58	7 12	1 05	5 2	7 9	1 10	5 6	7 5	1 15
8	M	4 59	7 11	1 57	5 3	7 7	2 2	5 6	7 4	2 8
9	T	5 0	7 10	2 57	5 4	7 6	3 2	5 7	7 2	3 7
10	W	5 1	7 8	rises	5 5	7 5	rises	5 8	7 1	rises
11	T	5 2	7 7	7 36	5 6	7 4	7 33	5 9	7 0	7 29
12	F	5 3	7 6	8 9	5 7	7 2	8 6	5 10	6 59	8 4
13	S	5 4	7 4	8 35	5 8	7 1	8 34	5 11	6 58	8 32
14	S	5 5	7 3	9 1	5 9	7 0	9 0	5 12	6 56	9 0
15	M	5 6	7 1	9 26	5 10	6 58	9 26	5 13	6 54	9 27
16	T	5 7	7 0	9 50	5 11	6 57	9 52	5 14	6 53	9 53
17	W	5 8	6 58	10 17	5 12	6 55	10 19	5 15	6 52	10 22
18	T	5 10	6 57	10 46	5 13	6 54	10 49	5 16	6 51	10 53
19	F	5 11	6 55	11 19	5 14	6 53	11 23	5 17	6 50	11 27
20	S	5 12	6 54	11 57	5 15	6 51	morn	5 17	6 48	morn
21	S	5 13	6 52	morn	5 16	6 50	0 2	5 18	6 47	0 7
22	M	5 14	6 51	0 43	5 17	6 48	0 47	5 19	6 45	0 52
23	T	5 15	6 49	1 33	5 17	6 47	1 38	5 20	6 44	1 44
24	W	5 16	6 48	2 33	5 18	6 45	2 38	5 21	6 43	2 43
25	T	5 17	6 46	3 38	5 19	6 44	3 42	5 22	6 41	3 47
26	F	5 18	6 41	sets	5 20	6 42	sets	5 23	6 40	sets
27	S	5 19	6 43	7 35	5 21	6 41	7 33	5 24	6 38	7 31
28	S	5 20	6 41	8 7	5 22	6 39	8 6	5 25	6 37	8 6
29	M	5 21	6 39	8 38	5 23	6 37	8 39	5 26	6 35	8 39
30	T	5 22	6 38	9 9	5 24	6 36	9 11	5 26	6 34	9 13
31	W	5 23	6 36	9 43	5 25	6 34	9 46	5 27	6 32	9 49

PHASES OF THE MOON

MOON.	D.	BOSTON. H. M.	N. YORK. H. M.	WASH'N. H. M.	CHA'STON H. M.	CHICAGO. H. M.
1st Quart..	4	4 7 m.	3 55 m.	3 43 m.	3 31 m.	3 1 m.
Full.....	11	4 29 m.	4 17 m.	4 5 m.	3 53 m.	3 23 m.
3d Quart..	19	3 6 m.	2 54 m.	2 42 m.	2 31 m.	2 1 m.
New Moon	26	4 41 ev.	4 29 ev.	4 17 ev.	4 5 ev.	3 35 ev.

AMERICAN AGRICULTURIST.

NEW YORK, AUGUST, 1870.

Relief from the hardest of the summer labor and care comes to almost every farmer in August. After spring grains are harvested, and the buckwheat and turnips are sown, and the latter hoed and thinned out, and the early apples are marketed, and preparations are made for winter wheat, though still there is work enough for his men and teams, he has time to draw a long breath and look about a little. Even the farmer may take his family for a visit to a neighboring county, to the springs, or to the sea-side; and some are wise enough to do it. The good it does cannot be measured. If it took every cent of the profits of the entire year it would often pay. Who knows when this incessant drive and worry, which seems to be the very life of many farmers, and into which they inconsiderately force their poor, work-worn partners, will end in a fit of sickness or in the quiet of the church-yard? Better rest, and enjoy life a little, now and then.—You will enjoy the final rest as well, and add essentially to the grand sum total of human happiness.

Hints about Work.

Buckwheat.—If any is to be sown so late as this, it should be put in at once. Excellent crops are often raised, but there is considerable risk of early frost. However, taking one year with another, it is generally successful; and the finest, plumpest grain in our experience fills during the cool nights which threaten frost but do not bring it. Farther south there is little or no risk of this sort. Buckwheat for green manure will make a good growth, sown as late as the 15th.

Turnips.—Quick growing varieties, known as Common, English, or Sweet turnips, may be sown up to the 10th, and will give good returns, especially if in drills, with a little superphosphate or bone-dust sown upon them. If the crop is put in in a small way, mark out the land, sow the seed, 1 pound to the acre, cover very lightly and sow 150 to 200 pounds of superphosphate of lime upon the drill either by hand or with the seed drill. If the seed drill be used, the manure must be sifted through a coarse sieve. It is, as a rule, too late for Ruta-bagas to do anything.

Tobacco.—This season is a critical one with the tobacco plant, and special care is required in topping and worming, and great injury often comes from hail or high winds, which cannot be guarded against. See article on page 289, on *Tobacco.*

Root Crops may be hoed and thinned where necessary. At all events, keep the weeds down and the ground mellow. A one-horse subsoil plow run between the rows of carrots, mangels, ruta-bagas, and parsnips, is often of great service in loosening the ground, admitting air and moisture.

Corn Fodder.—It is important when corn, sown for fodder, gets its full growth, and is sweet, succulent, and tender, that it should be cut and cured before it gets the toughness which comes on after the ears begin to fill; bind in small bundles, and stook.

Winter Wheat.—The preparation of the land for winter wheat was discussed in the "Hints about Work," for July, and this covered a good deal to be done in August. If wheat follows spring oats or barley, either plow shallow and work the surface with harrows or cultivators to keep it loose, and to kill the weeds, and plow in a dressing of good, fine compost, just before sowing in September, or plow in a dressing of manure of a little coarser character, as soon as the oats or barley are off. Work the surface over to kill weeds and make it mellow, two or three times, according to the weather, and drill in the seed without plowing again. Wheat may be sown the last week in August, in many localities, with the best results; but it is usually best to give a little more time to the tillage, and not to sow before September. There is a very great difference in land, and the same treatment will not do for all; but any land that will bear a crop of weeds will stand a good deal of surface tillage. The small grains require manure near the surface, and deep plowing is rarely desirable; and hence the great value of Shares' harrow, which acts like a series of little plows each turning a neat furrow.

Grain and Hay Stacks and Protection.—It is better to put hay and grain under a roof than to make stacks, but those who have not room in the barns must stack their crops. Stacks will settle, however well built, and rarely settle evenly. We like the Dutch four-post barrack with its thatched or board roof, very well, though heavy and cumbrous. It protects the contents sufficiently, and may be put up in a hurry. The system of making long, narrow heaps, and setting crotched posts at the sides with poles between them, upon which 13-foot boards may be laid to make a roof, is not so good; for the center of the roof needs support which it is difficult to give, and the hay, etc., is more exposed on one side. If a permanent roof is to be made it is best to give it a double pitch.

Straw.—The great and increasing value of straw at the East, and wherever paper is made, is leading farmers at the West more and more to save it in better order. Powerful presses will put a ton of straw into as small bulk as is desirable for railroad transportation; that is, it is found to be undesirable to put more than 10 to 12 tons in a common freight car, and one will hold this quantity of hard-pressed hay or straw.

Top-dressing Grass.—Sow grass and clover seed where the sward is thin through winter-killing or burning, and put on as liberal a top-dressing of good compost or tolerably well-rotted yard manure as you can afford. We hardly dare to set a limit to the profitable application of manure to the grass crop. With manure enough we do not doubt a heavy crop might be cut in June, August, and October, where now we cut but once. After-math hay, or rowen, is rarely or never cut on most farms, so far as our observation goes.

Irrigation.—Whoever has brooks or springs which may be led in small streams over grass land, ought not to neglect doing it. One properly irrigated acre is worth two or three dry acres; and the art of thorough irrigation and the best way to manage the water is easily learned.

Work in the Swamps.—Ditching so that muck may be got at, clearing swamp land, and similar work can often be done during the hight of the dry weather of summer, when men and teams can go

upon the ground. Burning of the surface of swamps is frequently very useful; but fires set in dry, mossy peat bogs by intention or accident, often get beyond control, and consume much more than the loose surface, running among timber and fences, and holding fire a long time.

Litter from the Swamp.—Brakes, with swamp grasses and sedges may often be cut to the extent of several tons to the acre; and if stored where they will not get soaked by the rains, will make very good litter for the barn-yard, cow-shed, or for the stables, and hog-pens. Some of the more succulent kinds rot rapidly if not well dried and protected; but all the sedges which constitute most of what is called swamp grass, require little drying, and will lie months in cocks simply, without decaying. This kind of hay makes first-rate stack bottoms, and good topping for that which is more liable to hurt by weathering, if not protected.

Compost Heaps.—While the warm weather lasts, and other more important work is not pressing, make compost heaps; laying up manure from the hog-pens with weeds, sods, etc., from the fence rows, freshly mown reeds, brakes, and swamp-grass. Compost makes very fast with a little good manure as a basis, and the quantity may be increased six-fold in a few months. Where no manure is at hand, use lime or ashes, sprinkled upon layers of dry muck and any vegetable matter. Dead animals are an admirable addition to such composts, and if used, the heap should be covered with soil.

Compost for Pastures.—Top-dressing old pastures with a compost made of such vegetable or peaty matter as can be collected in the vicinity, with lime, to which is added as much bone-dust as one can afford, thoroughly worked over and mixed, spread and harrowed in, will make a wonderful difference in the yield of grass.

Working Oxen are ill adapted to severe labor during the hottest part of the day, but if put to the hardest work in early morning, and after the heat of the day is passed, they will be capable of doing a great deal without falling off in flesh. Hired men will gladly accede to a proposition to break their day's labor by a three-hours' nooning and rest.

Horses should be kept stabled by day where good ventilation and comparative darkness give them comfort. They may be turned out to feed at night when the blood-sucking flies and gad-flies will not torment them.

Cows should have a liberal supply of green fodder if their pasturage is dry or short. Change from one pasture to another as often as they become restless, and thus keep them contented and give the grass a chance to start. Grass fodder should be cut and allowed to wilt, but not allowed to dry nor heat before feeding.

Calves and Colts should be weaned at four or five months old. This must be done gradually by separating them from the dams for half a day at a time, and giving them grass or cut hay with a little oil-meal and ground oats upon it. Gradually prolong the period of separation, and shorten the time they are together in the case of colts, and so gradually dry off the mare. With calves, the best plan is to steal the milk, leaving them very little, and so gradually forcing them to depend upon other sources of supply.

Sheep and Lambs.—The separation and weaning of the lambs occur more abruptly. Big lambs exhaust the ewes greatly, and should be separated from their dams early enough for the ewes to recuperate thoroughly before the breeding season. This is done by removing them at once to good pasturage out of hearing of the ewes, while these are left upon rather short feed for a few days. The deep milkers may be in danger of having their bags cake and swell, and must be watched and have the milk drawn if the bags feel hot and feverish or much distended.

Work in the Horticultural Departments.

If the horticulturist ever has any leisure, excepting in winter, it is in August, when, if the weeds and insects are under fair subjection, he may await the coming harvest without feeling the constant pressure of work that drives him during other months. Still there is a plenty to do, and we give such notes as seem timely.

Orchard and Nursery.

Marketing.—The early fruits will now be coming, and will need attention if sent to market. Apples and pears should be picked when fully matured, but before they begin to mellow. Recollect—what has been so often repeated—it does not pay to send poor fruit to market. It costs as much for freight and packages for poor stuff as it does for good. Superior fruit will always sell, no matter if it is a season of plenty. In such seasons it is difficult to dispose of an indifferent or a poor article in our city markets at any price. Assort the fruit.

Peaches are to be picked in just that condition of ripeness in which they are firm enough to endure transportation, and will be in eating condition by the time they reach the consumer. If too hard, they will fail to ripen up properly, and if too soft, they will bruise in the carriage. Experienced pickers soon learn to recognize the proper condition by the appearance of the fruit, without subjecting it to the test of touch. Crates are becoming each year more popular for packing peaches. Directions for making them were given last month on page 263.

Thinning should have been done before; but few thin the fruit sufficiently at the first going over, and it is better to look over the trees again and remove inferior specimens.

Insects are to be watched. As soon as the nests of the fall web-worm appear, destroy them. This month the red spider is often troublesome, not only on fruit-trees, but on ornamental ones. It shows itself by a browning of the leaves; and a close examination will detect the minute, red pest. Frequent syringings with soap suds, or even clear water, will dislodge it, if persisted in.

Budding.—The time to bud is when the bark of the stock will "run," or part readily from the wood, and well-formed buds of the same season's growth can be procured. The maturing of the buds may be hastened by pinching the end of the shoot. When sticks of buds are cut, the blade of the leaf should be cut off, leaving the leaf-stalk attached to the twig. Keep the twigs moist until they are used.

Fruit Garden.

Thinning the Fruit is easily performed upon dwarf trees, and such should never produce other than fine specimens. The trees are so small that they can be petted and cared for in a manner not practicable with standards.

Strawberries.—Beds may be set by the use of potted runners; directions for making were given last month on page 264. Keep the runners cut off from vines grown in hill culture. A dressing of guano or ashes just before a rain will help the plants.

Blackberries and Raspberries.—The new growth should not be allowed to reach higher than 5 feet; some stop as low as 4 feet. The tender point is pinched out, or a knife is used. This stopping of the growth causes the side shoots to push, and these are in turn pinched when they are 18 inches long. Keep all suckers hoed down, and when the fruit is off, remove the canes that have borne.

Black Caps differ in their manner of growth from ordinary raspberries; they do not throw up suckers from the root, but multiply by rooting at the ends of the canes, which naturally bend down and touch the earth. If it is not desired to propagate plants, the new growth is pinched at the hight of about 30 inches, which causes lateral shoots to push.

Grapes.—After the first appearance of mildew there is no time to be lost in applying sulphur. Grayish patches on the fruit stems or upon the leaves call for an immediate and thorough dusting with sulphur. See article on page 303. Go over the vines and hand-pick beetles and caterpillars; keep the new growth tied up and pinch the laterals back to one leaf as often as they push.

Kitchen Garden.

Beans, if desired for salting or pickling, may be sown and will give a supply of green pods.

Cabbages and *Cauliflowers.*—Give thorough culture, using the hoe frequently. If any are disposed to be slow, give a dressing of guano or hen manure. Lime or salt is used for destroying slugs.

Carrots.—Thin the late sowings and keep cultivating until the tops are so large as to prevent.

Celery.—Keep the soil well stirred and free from weeds. Plants for a late crop may yet be set.

Corn.—Those who save their own seed should select the earliest and best formed ears for the purpose. It is very easy to keep the variety improving, and it is equally easy to deteriorate it by taking the leavings of the crop for seed.

Cucumbers.—Save the finest and earliest for seed. Pick for small pickles every day.

Egg-Plants.—Continue to forward them by cultivation and manuring. The "Tomato-worm" will often attack the plants and do much mischief.

Endive.—Set out the plants a foot apart each way in rich ground; cultivate well to induce a rapid growth. They may be blanched by tying, covering with a flower-pot, or by laying a board upon them. The operations should be performed only when the plants are quite dry.

Melons.—Remove such fruit as will not ripen before frost. In saving seeds select the earliest, and those grown at a distance from any other variety.

Onions are ready to harvest when the tops lose their stiffness and fall over to one side. When a good share have done this, the crop may be pulled. If the onions are to be stored, they should first be thoroughly dried and then spread in a cool loft where they will have ventilation.

Radishes.—Sow the winter sorts at the proper time for sowing round turnips. The Chinese Rose-colored Winter is the best, though some fancy the white and black.

Spinach, if sown in rich ground, will give a supply this fall. It is too early to put in the crop intended to keep over winter.

Squashes.—Continue to remove destructive insects from the vines. See note on page 302. When the vines root at the joints, do not disturb them.

Sweet Potatoes, whether in hills or upon ridges, must be kept free from weeds until the vines completely cover the ground. Do not allow the vines to take root, as they are apt to do when they come in contact with the soil; move them occasionally.

Tomatoes.—Those who have a choice variety should take pains to preserve and even improve its good quality. A dozen vines of the same variety planted side by side will show marked differences in earliness and productiveness, and in the shape and solidity of the fruit. By attending to these points and sacredly reserving the most desirable for seed, each grower can establish a style, if not a variety of tomato, that will suit his purposes. If training is practised, whatever form has been adopted should be faithfully followed up. Give the tomato-worm no quarter. If left to itself for a day it will make havoc. Its droppings seen upon the leaves or upon the ground are warnings to be heeded.

Turnips.—Dust the young plants with lime or a mixture of plaster and ashes, if insects trouble them.

Weeds.—Keep at them. Those cut up this month die quickly and are quite sure to stay dead.

Flower Garden and Lawn.

Lawns.—This is a trying month for new lawns; if, as is often the case, the green was produced in good part by annual grasses, these will die out, leaving brown and bare spots. Encourage the formation of a close turf by rolling after a rain, and by frequent mowing.

Edgings and *Margins* will require the use of the edging knife to keep them neat.

Bedding Plants.—See that they do not grow out of shape and get mixed. Most of them will require the use of the knife to keep them in shape.

Dahlias usually suffer at this season for want of water. They should be kept in a growing condition.

Roses.—To keep the ever-blooming sorts up to their name, as soon as the flowers drop, cut the stem back to a strong bud, and it will soon push new shoots and flower again.

Gladioluses.—Tie up those that need it; the flowers are so heavy that the stalk is frequently unable to support them.

Lilies will also need staking. Cut away the flower as soon as it fades, unless it is desired to save seed. Keep the foliage free from caterpillars, which are apt to attack them at this season. The future condition of the bulbs depends upon healthy foliage.

Chrysanthemums.—Bring into desired shape by pinching. Do not let them become crowded, or the lower leaves will decay. Tobacco water will kill lice; and the caterpillars, often so troublesome upon them, must be pinched off by hand.

Last Month we gave several hints upon general care and keeping, which are still timely.

Green-house and Window Plants.

The plants out of doors continue to need the care mentioned in last month's notes. The earlier repairs are made to the house, the better. When this and the heating apparatus are in good order early in the season, much hurry and confusion will be saved at the time of taking in the plants. Propagation by cuttings from plants out of doors can go on. It is well to partially sever or "tongue" the cuttings of geraniums and other very soft-stemmed plants before removing them entirely. The cut portion becomes callous while still upon the plant, and when removed is ready to strike root.

Commercial Matters—Market Prices.

The following condensed, comprehensive tables, carefully prepared specially for the *American Agriculturist*, show at a glance the transactions for the month ending July 13, 1870, and for the corresponding month last year.

1. TRANSACTIONS AT THE NEW YORK MARKETS.

RECEIPTS.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
25 days *this* m'th.	378,000	3,341,000	1,228,500	76,000	53,000	734,000
25 days *last* m'th.	361,000	2,389,000	664,000	263,000	204,000	817,000
SALES.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
25 days *this* m'th.	283,000	4,237,000	1,568,000	109,000	13,500	1,411,000
25 days *last* m'th.	267,000	2,988,500	1,137,000	78,000	40,000	1,228,000

2. *Comparison with same period at this time last year.*

RECEIPTS.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
25 days 1870	378,000	3,341,000	1,228,500	76,000	53,000	734,000
24 days 1869	313,500	3,342,500	1,244,000	87,000	27,000	508,000
SALES.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
25 days 1870	283,000	4,237,000	1,568,000	109,000	13,500	1,411,000
24 days 1869	416,000	4,247,000	2,113,000	65,000	——	1,194,000

3. *Exports from New York, Jan. 1 to July 13:*

	Flour.	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
1870	880,626	7,964,408	164,463	65,734	——	9,788
1869	605,950	6,260,268	1,481,849	68,536	——	42,357
1868	481,663	2,956,522	4,044,662	153,093	——	39,368

4. *Stock of grain in store at New York:*

1870.	*Wheat,* bush.	*Corn,* bush.	*Rye,* bush.	*Barley,* bush.	*Oats,* bush.	*Malt,* bush.
July 11	1,231,913	483,510	28,816	93,600	655,068	109,478
June 7	706,478	69,845	21,891	94,630	488,143	108,775
May 10	1,158,052	110,329	20,502	126,043	410,517	83,000
April 11	1,845,186	285,946	23,249	187,172	756,311	99,988
March 7	2,509,608	484,176	39,089	278,905	1,105,194	97,139
Feb. 11	2,902,638	534,003	62,112	322,425	1,199,672	36,214
Jan. 12	4,423,028	591,903	38,239	34,900	1,310,935	85,405
1869.						
Dec. 11	3,810,562	823,909	50,043	285,906	1,386,594	77,097
Nov. 10	1,616,030	693,085	31,700	31,584	281,581	66,782
Oct. 11	978,272	445,068	34,467	5,948	120,950	67,094
Sept. 6	745,121	127,736	56,081	——	183,920	134,870
Aug. 9	634,262	253,155	75,797	361	50,219	105,458
July 10	531,657	328,613	71,418	2,966	259,985	97,177
June 7	637,877	385,241	107,546	383	555,993	109,746

5. *Receipts at head of tide-water at Albany each season to July 7th:*

	Flour, bbls.	*Wheat,* bush.	*Corn,* bush.	*Rye,* bush.	*Barley,* bush.	*Oats,* bush.
1870	105,700	5,071,000	509,000	260,600	82,400	818,200
1869	92,100	4,750,200	1,671,100	183,400	11,800	1,192,200
1868	97,100	4,529,400	5,379,500	159,400	326,400	3,446,100
1867	18,800	141,000	2,105,500	89,600	28,900	937,600
1866	72,900	1,097,900	6,698,700	280,700	76,702	2,737,300

Gold has been as high as 115¼ since our last, influenced by the war reports from the Continent of Europe. The latest advices to the 13th of July, gave promise of a continuance of peace. Gold thereupon receded to 112, leaving off on the 12th of July at 112⅝....Early in the month, the liberal receipts of Breadstuffs gave buyers the advantage as to price, yet the demand was not remarkably active, save for Wheat, which met with a pretty ready sale, largely for shipment. Toward the close, the rise in gold, under the war reports from Europe, strengthened the views of holders of Flour and Wheat, which, however, were not in urgent request at the advanced rates claimed, and the market wound up with less firmness. Corn closed quite heavily, for other than prime, dry parcels, received by rail, which were not plenty, and which were quoted comparatively steady. Rye and Barley were quite dull, and nearly nominal in price. Oats have been moderately active, but closed in favor of purchasers..... Cotton has again declined, under free offerings, and a moderate demand... The Provision market has been generally quiet; Mess Pork has been quoted lower.... Wool, which opened dull and heavy, closed with more steadiness, on a better inquiry....Hops have been moderately dealt in at essentially unchanged prices....Hay and Seeds have been less sought after at about former rates....The main business in Tobacco has been in Kentucky, which has been freely purchased, partly for export, within our range of quotations.

CURRENT WHOLESALE PRICES.

	June 13.	July 13.
PRICE OF GOLD	113¼	112⅝
FLOUR—Super to Extra State	$5 20 @ 6 40	$4 85 @ 6 35
Super to Extra Southern	6 25 @10 00	5 90 @ 9 75
Extra Western	5 60 @10 00	5 35 @ 9 75
Extra Genesee	6 50 @ 8 50	6 40 @ 8 25
Superfine Western	5 20 @ 5 50	4 85 @ 5 25
RYE FLOUR	4 60 @ 5 75	5 10 @ 6 50
CORN-MEAL	5 25 @ 5 75	5 20 @ 5 75
WHEAT—All kinds of White	1 50 @ 1 90	1 45 @ 1 90
All kinds of Red and Amber	1 10 @ 1 46	1 00 @ 1 50
CORN—Yellow	1 10 @ 1 25	1 07 @ 1 15
Mixed	93 @ 1 09	88 @ 1 07
OATS—Western	65 @ 71	62 @ 71½
State	70 @ 71	69 @ 72
Canada	63 @ 65	61 @ 66
RYE	1 05 @ 1 14	97 @ 1 12
BARLEY	Nominal.	67 @ 1 05
HAY—Bale ₱ 100 lb	75 @ 1 05	70 @ 1 15
STRAW, ₱ 100 lb	50 @ 1 05	50 @ 1 10
COTTON—Middlings, ₱ lb	22 @ 22¾	20 @ 20¾
HOPS—Crop of 1869, ₱ lb	12 @ 25	10 @ 25
FEATHERS—Live Geese, ₱ lb	80 @ 85	80 @ 85
SEED—Clover, ₱ lb	13½@ 14½	13½@ 14¼
Timothy, ₱ bushel	7 25 @ 7 75	7 00 @ 7 50
Flax, ₱ bushel	2 20 @ 2 35	2 30 @ 2 50
SUGAR—Brown, ₱ lb	8¾@ 11¼	8½@ 11½
MOLASSES, Cuba, ₱ gal	22 @ 45	22 @ 42
COFFEE—Rio, (Gold, in bond)	9½@ 13	9½@ 13
TOBACCO, Kentucky, &c., ₱ lb	6 @ 18	6 @ 14
Seed Leaf, ₱ lb	8 @ 70	6 @ 70
WOOL—Domestic Fleece, ₱ lb	40 @ 60	35 @ 55
Domestic, pulled, ₱ lb	22 @ 45	23 @ 45
California, unwashed	17 @ 30	17 @ 30
TALLOW, ₱ lb	9¼@ 9¾	9¼@ 9¾
OIL-CAKE—₱ ton	41 50 @42 75	42 50 @45 00
PORK—Mess, ₱ barrel	30 45 @30 62½	28 00 @29 75
Prime, ₱ barrel	22 00 @23 50	22 00 @23 75
BEEF—Plain mess	12 00 @18 00	11 00 @18 00
LARD, in tres. & barrels, ₱ lb	14¾@ 16¾	14¼@ 16¾
BUTTER—Western, ₱ lb	15 @ 30	15 @ 30
State, ₱ lb	20 @ 31	22 @ 35
CHEESE	5 @ 17½	5 @ 14½
BEANS—₱ bushel	1 20 @ 2 50	1 20 @ 2 50
PEAS—Canada, in bond, ₱ bu	1 10 @ 1 15	1 12 @ 1 15
EGGS—Fresh, ₱ dozen	22 @ 24	25 @ 28
POULTRY—Fowls & Chickens	18 @ 20	20 @ 21
Chickens, Spring, ₱ pair		75 @ 1 25
Turkeys, ₱ lb	18 @ 21	20 @ 21
Geese, ₱ pair	1 25 @ 2 50	1 50 @ 2 00
POTATOES, ₱ bbl	1 50 @ 9 50	3 50 @ 6 50
APPLES—₱ barrel	2 00 @ 6 00	3 00 @ 6 00
Pears, ₱ crate		1 75 @ 3 00
Peaches, ₱ crate		4 00 @ 8 00
Currants, ₱ lb		7 @ 15
Cherries, ₱ lb		12 @ 18
Gooseberries, ₱ bushel		3 50 @ 4 00
SWEET POTATOES, ₱ bbl	— @ —	— @ —
TURNIPS—₱ 100 bunches	— @ —	2 50 @ 5 00
CABBAGES—₱ 100	4 00 @ 8 00	5 00 @ 8 00
ONIONS—₱ crate	@	1 50 @ 2 50
CRANBERRIES—₱ bbl	— @ —	— @ —
BROOM-CORN—₱ lb	10 @ 15	8 @ 13
Tomatoes, new, per crate	@	1 75 @ 2 50
Peas, green, per bbl	3 00 @ 3 50	2 00 @ 3 00
Cucumbers, ₱ 100		1 75 @ 2 25
Squashes, Long Island, ₱ bbl		2 00 @ 3 00
Blackberries, ₱ quart		4 @ 22
Raspberries, ₱ quart		6 @ 12
Whortleberries, ₱ bushel		3 00 @ 5 00

New York Live-Stock Markets.—

WEEK ENDING.	*Beeves.*	*Cows.*	*Calves.*	*Sheep.*	*Swine.*	*Tot'l.*
June 22d	6,405	73	3,272	22,730	20,301	52,771
do. 28th	5,360	64	3,882	24,896	17,318	51,520
July 5th	6,013	66	3,283	27,690	11,009	48,061
do. 13th	7,941	288	2,118	20,690	15,249	56,295
Total in 4 Weeks	25,720	470	12,555	106,005	63,877	208,647
do. *for prev. 5 Weeks*	33,132	391	19,567	98,924	100,140	251,157

	Beeves.	*Cows.*	*Calves.*	*Sheep.*	*Swine.*
Average per Week	6,430	117	3,139	25,501	15,969
do. do. *last Month*	6,626	78	3,903	19,785	20,028
do. do. *prev's Month*	6,380	84	3,731	14,393	14,271
Average per Week, 1869	6,275	92	1,752	28,836	15,348
do. do. do. 1868	5,733	105	1,588	27,182	18,809
do. do. do. 1867	5,544	61	1,320	22,154	20,605
do. do. do. 1866	5,748	94	1,300	20,000	13,000
do. do. do. 1865	5,255	118	1,500	16,091	11,023
Total in 1869	326,380	4,327	91,083	1,499,509	798,199
Total in 1868	298,128	5,466	82,571	1,413,479	973,061
Total in 1867	293,832	3,369	69,911	1,171,154	1,102,643
Total in 1866	298,880	4,885	62,130	1,040,000	672,000
Total in 1865	270,271	6,164	71,991	836,733	573,190
Total in 1864	267,609	7,603	75,621	732,462	660,277

Beef Cattle.—Notwithstanding the increased supply of cattle in market, consequent in a great measure upon the greatly reduced rates of transportation, prices have not changed much since our last report. For the two weeks ending June 28th, prices were about ½ ct. per pound lower on all grades; but buyers pretty generally went West for their stock and paid the producer a higher price, so that the butcher here gained but little by the railroad war, as it is called. This fact has also had a tendency to graduate the supply, and at no time has the market been too full or trade dull. We have had a great many poor, thin, Texas cattle, which sold very low. Good grades, however, remain about the same; the best of each drove going at 17c. per pound, or a trifle less if a "little green." Below we give the list of prices, average, and figures at which the largest were sold.

June 22d, ranged	12	@17	c. Av. 15	c. Large sales	14	@16c.
do. 28th,	do.	10 @17	c. do. 15½	c. do.	do.	14 @16½
July 5th,	do.	9 @17	c. do. 15½	c. do.	do.	14 @16½
do. 13th,	do.	11 @17	c. do. 15	c. do.	do.	14 @16

Milch Cows.—Hot weather and dry feed are bad for milch cows, and those which are not sold at once, soon fall off in milk and look poorly. The demand for cows at this season of the year is light, and but few really first-class ones are on sale. Prices range from $45 for medium half-milked, up to $85 and $90, and even $100, for the best on sale. Some common Canada cows have been sold as low as $38.....**Calves** are poor and plenty for the hot season. Trade is dull, and except for the very best, prices correspondingly low. Buttermilk and grass fed, 4c.@6c. per pound. Milk veals, 6½c.@8c., with very choice 9c.@10c. per pound.....**Sheep** and **Lambs.**—The arrivals have been quite large, and trade, though firm, has been at lower figures. We quote very poor to ordinary sheep at from 4c.@4½c.; medium to good, 5c.@6c.; and for extra, 6½c.@7c. per pound. Lambs vary a great deal in size and quality, and the range of price is great. Poor lambs sell as low as 7½c.@8c., and the best reach as high as 13c. per pound. Most of the sales are between 9c.@12c. per pound.....**Swine.**—There has been quite a falling off in supply to this department, and prices have also gone down a little. Packers have been greatly inconvenienced by the scarcity and high price of ice, and have in some cases stopped slaughtering. This has thrown the lean hogs on the market, and prices dropped a little. We quote live hogs at 9¼c., and dressed at 11c.@11¾c.

containing a great variety of Items, including many good Hints and Suggestions which we throw into smaller type and condensed form, for want of space elsewhere.

Postage 12 Cents a Year in Advance.—The postage on the *American Agriculturist* anywhere in the United States and Territories, *paid in advance*, is 3 cents a quarter, 12 cents a year. If not paid in advance, twice these rates may be charged.

How to Remit:—Checks on New York Banks or Bankers are best for large sums; made payable to the order of **Orange Judd & Co.**

Post-Office Money Orders may be obtained at nearly every county-seat, in all the cities, and in many of the large towns. We consider them perfectly safe, and the best means of remitting fifty dollars or less, as thousands have been sent to us *without any loss.*

Registered Letters, under the new system, which went into effect Oct. 1, 1868, are a very safe means of sending small sums of money where P. O. Money Orders cannot be easily obtained. *Observe*, the *Registry fee*, as well as postage, *must be paid in stamps* at the office where the letter is mailed, or it will be liable to be sent to the Dead Letter Office. *Buy and affix the stamps both for postage and registry, put in the money, and seal the letter in the presence of the postmaster, and take his receipt for it.* Letters thus sent to us are at our risk.

Clubs can at any time be increased by remitting for each addition the price paid by the original members, if the subscriptions all date at the same starting point. The back numbers will, of course, be sent to added names.

Bound Copies of Volume XXVIII (1869) are now ready. Price, $2, at our office; or $2.50 each, if sent by mail. Any of the previous twelve volumes (16 to 28) will be forwarded at the same price. Sets of numbers sent to our office will be neatly bound in our regular style at 75 cents per vol., (50 cents extra, if returned by mail.) Missing numbers supplied at 12 cents each.

The Season and the Crops.—The season is now so far advanced that a fair judgment may be passed upon the crop prospects. The hay crop of the northern seaboard States has been seriously damaged by the June drouth, which, in many important grazing sections, was of unusual severity; as it was also at the West in more limited districts. Hay will probably rule high in price, and should be supplemented by careful saving of oat straw and corn fodder, and the sowing of wheat or oats, turnips or rape for late pasturage. It might be well to try spurrey (see another item,) and it would surely be well to sow wheat and rye for early spring feeding. Sweet turnips sowed now will give a good return in roots. Wheat and rye are less plump than they would have been had they not been ripened up so fast. The crop

will not be a large one, both on account of extensive winter-killing of broadcast grain, and on account of the drouth. Spring wheat promises to make up in some degree for the deficiencies of the winter wheat crop, as the season has been remarkably propitious for it; and the abundant harvest rains, coming too late for winter grains, have favored spring wheat, oats, and barley, very greatly. Little complaint of midge or rust has come to us so far. The corn crop of the Eastern States was much put back by the drouth, and that of the West suffered also. Early planted corn was much of it in a condition to be rather benefited than otherwise by the dry, hot weather, and thus a wonderful disparity existed, which will tell at harvest time. *Potatoes.*—We fear the low price which potatoes brought this spring has induced the planting of a small breadth of land to them. They are looking finely at the time of writing (July 14th), late varieties promising especially well.

Agricultural and Horticultural Fairs.—We are obliged to go to press so early in the month that we are unable to prepare a satisfactory list of Fairs for our August number. The Fairs to be held in August, were mentioned last month on page 247. We shall endeavor to publish as complete a list as possible in September, and will be glad to receive premium lists and any information which will make it more accurate.

Great Field Trial of Harvesting Implements.—The Missouri State Board of Agriculture made, according to announcement, a trial of Field Harvesting Machines near St. Louis. The competition between Mowers, Reapers, etc., was between the following machines: Champion, Advance, Acme, Kirby, Clipper, Excelsior, Burdick, Climax, Ætna, Baeyrus, John P. Murray, Marsh Harvester, and Meadow King. There was, besides, Stacking and Pitching Apparatus. The premiums awarded are as follows: Best *Harvester*, "the Marsh;" best *Combined Reaper and Mower*, "New York Clipper;" best *Self-raking Reaper*, "the Burdick" (Kirby Improved); best *Reaper*, "Climax;" best *Mower*, "Acme" (Climax improved); best *Hay Fork*, "Nellis' improved Rogers' Harpoon; best *Stacker, etc.*, "Nellis."

New York State Fair of 1870, at Utica, Sept. 27, 28, 29, 30. Entries close August 31, but intending exhibitors of fruits and flowers need only make their applications for space in advance, and, if they prefer, may defer making detailed entries until the morning of Tuesday, Sept. 27. TRIAL OF IMPLEMENTS.—The testing and judging of implements and machines will begin on Monday, September 12, at Utica, and continue probably two weeks. No premiums will be awarded without actual trial for any implements in sections 17 and 18 of the Premium-List, and trial cannot be promised to any exhibitors making their entries later than August 15. Other machines besides those mentioned in the Premium-List, will be admitted to trial if they give promise of value and if time will admit. For copies of the Premium-List, and for blank forms for entries, address the Secretary, State Agricultural rooms, Albany, N. Y.

Crops in Illinois.—N. J. Shepherd, St. Clair Co., writes: "Since the wheat harvest is about over we can judge pretty well of the prospect for a good crop for this year. Wheat is something better this year, though it stood very thin on the ground, so much so that a large number of acres were too thin to pay for harvesting. The grain is somewhat better than it was last year. The prospect for oats, corn, and hay, is very good, and if the price is not too low, these will relieve farmers greatly from their indebtedness. Farmers were more careful this season in getting harvest hands, and the majority paid $2 per day for men. The prospect for fruit is very flattering; there seems to be an abundance of small fruits now, and more coming on."

Pomologists in California.—Our pomological friends in California are enjoying a visit from some of their distinguished, eastern brethren. We doubt not that the visitors on their part are highly enjoying themselves; and we know none better able to appreciate the horticultural wonders of California than such gentlemen as Wilder, Downing, Barry & Ellwanger, who, with others, compose the party. Perhaps this visit may lead to a meeting of the Am. Pomological Society upon the Pacific coast in 1873.

Mr. Dreer's Establishment. — We have long known Mr. Henry A. Dreer, of Philadelphia, as an enterprising and reliable seedsman; but we were not prepared to find him so largely engaged as a florist, as a recent visit to his establishment showed him to be. At West Philadelphia he has a garden and green-houses, and at Riverton, N. J., a large farm devoted to seed-raising, bulb-growing, and the propagation of small nursery stock. Here, also, is another extensive range of green-houses. Gladioluses, Tuberoses, Verbenas, etc., are grown by the acre for seeds and bulbs. Onion Sets, which are a Philadelphia specialty, covered a large area, and numerous crops of vegetable seeds, small fruits, ornamental shrubs and vines, and evergreens had their appropriate quarters. We saw here many interesting plants, some of which we may notice at another time.

President Wilder Strawberry.—This new variety was not mentioned in our notes upon page 304, as at the time they were made up we had not seen any specimens. It has not fruited to any extent in the neighborhood of New York, but at the June Exhibition of the Mass. Hort. Society it was the principal feature. A sample of the fruit from J. M. Merrick, Jr., of Waltham, Mass., was sent to Messrs. Bliss & Son, which, though it endured the rough handling of the expressmen satisfactorily, had been too long from the vines to appear at its best in point of flavor.... We notice in the Country Gentleman a communication signed "J. E. Tilton & Co., Proprietors of the President Wilder Strawberry Plant." Is there but one plant, and who is the "proprietor" of those we received from Col. Wilder himself?

Old Seeds.—"H. L. H.," Portage Co., O., wishes we would "blow up in the humbug column," those who furnish country merchants with garden seeds, as those which are sold are too old to germinate. We think that the country merchants have as much to do with selling old stock as those who supply them. We advise our correspondent to send to some seedsman of reputation for his stock of seeds, and he will fare better.

Cabbages—American and Foreign Varieties.—Recently we visited a farm upon Long Island, to examine a crop of cabbages which had been raised for Mr. Dreer, of Philadelphia, for the purpose of testing the most popular European varieties by the side of our own. There were some 30 varieties grown in field culture, and in sufficient quantities to show what they would do as a crop. They presented a wide range of quality, from perfectly worthless to very good. There were only two or three that seemed to be worthy of further trial. The result of the experiment is, that we have little to gain by going abroad for our varieties of cabbage. Several of the European varieties have been so modified by culture in this country that seed of the same kind grown here is vastly preferable to the imported. Some of the Long Island farmers have local varieties, or strains, which they have obtained by selection, in which earliness and solidity are combined in great perfection.

Sundry Humbugs.—Multitudes of letters come to us, asking about many parties we have already exposed. Our previous articles under this head should be consulted. We can not continually go over the same ground again for the benefit of such writers. New subscribers, of course, can not refer to back numbers. It may generally be understood that when we do not refer to such inquiries, it is because the parties inquired about have already been shown up within a few months, or a year or two at most.....The City Swindlers who have made money enough, are, like many others, off to the "Watering-Places" and "Country Retreats," and some of them carry their "business" with them. The chap who has operated extensively as "Daily & Co.", "Wogan & Co.", "Waters & Co.", and under sundry other *aliases*, most of which we have shown up, prints a lot of circulars, all alike, and puts in a card, giving himself various names and addresses. He dispatched to the far West and South, a large lot of these circulars, giving in some a card "Samuel Fox, Bergen Point, N. J."; in others a card, "Peter Jackson," same P. O.; and in others, "Edward Palmer," same P. O. Fortunately, Mr. Gayler kept track of him; and his numerous letters, excepting a very few of the first, went to the Washington Dead-letter Office, to be returned to the unfortunate, dishonest dupes, who wanted to deal in counterfeit money. It is better treatment than *they* deserved.....One of the most plausible schemes is signed "J. Fuller, 37 LaFayette Place, N. Y.", under a letter head "W. H. Morris & Co., Clifton Building." He pretends to print from a genuine U. S. plate obtained surreptitiously from the U. S. Treasury Department. He will doubtless take in a good many victims.....T. F. Wood, Vernon, N. J., offers not only the "queer," but "exciting" books to injure the young.—Will Mr. Gayler please engage lodgings for this rascal along side of Jas. S. Colgate, at Sing Sing.....Thomas W. Pierce, 89 Nassau-st., *alias* Wm. B. Logan, 15 Dutch-st., *alias* Wm. J. Ferguson, 194 Broadway; Rufus Stockton, 204 Broadway, *alias* Adam Smith, 210 Broadway; Robert H. Holland, 212 Fulton-st., and 73 Nassau-st., *alias* John F. Hamilton, 212 Broadway, and 73 Nassau-st.; Henry E. Stewart, Earle's Hotel, and W. H. Wood, 206 Broadway, etc., are the assumed names of operators in Photographs, pretending to be money.....The Express swindle is revived again. For example, G. L. Seymour writes to a young man in Wabash, Indiana, that a package has been received for him at the office of the "American Dispatch Express Company, 184 Broadway," on which there are $2.35 charges due, and that if it is not paid for in 20 days the goods will be sold at auction—a swindle of course. In this case, the operator calling himself G. L. Seymour, has got hold of an old list of names, as the party to whom the statement was sent, has resided in Maryland, eight months past, and the important notice was forwarded to him there from Wabash.....Deafness. To N. B. R., and others. Don't send your money. If the "Dr." can't trust you, don't you trust to his returning the money. But no Doctor advertising certain cures is to be trusted either with your money, or life, or health, or ears, or eyes.....W. M. of Mich., and ——, Darestown, N. J. That Bowery Doctor is a vile humbug. Ditto the "Regenerator"....."Howard Association." We are receiving other letters in corroboration of what was said on this topic last month. To cure the "errors of youth" don't send money to the chaps running those swindling "Associations," so-called. Take strong, active exercise; eat nourishing, easily digestible food, but nothing after 4 or 5 P. M.; sleep on a hard bed, and give medicines to the dogs. This prescription is worth a million times all you will get from the "Howard Association" after they have called on you time and again for money, money, and more money, and sent you "powders," and other stuff in any quantity. .....Henry P. Jones & Co. (so-called), keep on referring to McKillop, Sprague & Co., etc., for their "Grand Presentation $275.000 Enterprise" humbug. See our April No., page 126, and May number, page 166.....Beware of advertisements of sewing machines, on the gift principle, from unknown new parties. One such party offers to send a machine C. O. D., *if* a few dollars be sent with the order. They, of course, pocket the money, and that is the end of it, so far as the sender is concerned.

Arbor Vitæs.—A lady wishes to know if pruning will prevent her Arbor Vitæs from turning brown in the fall. It is one of the faults of this tree that it becomes unsightly in winter. No pruning or other treatment will remedy it.

Four-leaved Clover.—J. R. Carter. The clover with four or more divisions of the leaf instead of the usual number of three is not a species, but a not very unusual development of common clover.

Wild Lilies.—A correspondent sends us a specimen of the Turk's-Cap Lily, and asks if it can be transplanted to the garden. This species (*Lilium superbum*) makes a fine plant in cultivation, and is highly valued in Europe. The most favorable time for taking up the bulbs is when the leaves have turned yellow.

Onion Seed.—A. N. Curtis. Our seed-growers thrash with a flail and winnow. Some wash the seed to clear it of the light particles, but our best growers do not approve of the practice.

Geranium Sporting.—"F. K. M.," Philadelphia. Some of the geraniums will sport in the way you mention, and by propagating the sporting branches the peculiarities are perpetuated.

Pear Blight.—C. H. Kent. The blight is probably a minute fungus, the presence of which is not suspected until the mischief is done. No preventive is known. The best way is to cut back the limbs to sound wood and burn the trimmings. White lead applied to the wounds of a tree has no special curative properties. It protects the part from the action of the weather, and is as easily applied as anything.

Characteristics of American Horticulture.—Under this title the editor of the Horticulturist writes to the English Gardener's Magazine. He says: "You do not find here a true American son of the soil touching anything high or low (much less horticultural) unless there is *some money* in it."—"There's an opinion as is an opinion."—Neighbor Williams should publish this article in his own journal, if he wishes to get up an excitement among American horticulturists.

Tan for Hot-beds.—"Weymouth." Tan is sometimes used for producing bottom heat. It takes much longer to heat up than stable manure, and the heat continues longer. It is sometimes mixed with stable manure. It is but little used in this country, and we cannot say how it would do for winter work.

Plants Named.—E. C. Breed, Waupaca Co., Wis. The Twin-flower, *Linnæa borealis*. A beautiful little vine and doubly interesting on account of bearing the name of the great Linnæus....W. S. Williamson, Coffee Co., Kansas. *Callirrhoë involucrata*. We know no

other name for it; frequently cultivated in gardens.... "D.," Goshen, Conn. *Equisetum arvense*, frequently called Ground Pine, and a weed in low wet lands...."B. F. T. & Bro.," Humboldt, Tenn. Virgin's Bower, *Clematis Virginiana*. The other plant sent called "Virgin's Bower in Tennessee is the American Wistaria, *Wistaria frutescens*....Lizzie M. Gilchrist, Hancock Co., Ind. No. 1, *Collinsia verna*. No. 2, Bellwort, *Uvularia perfoliata*. No. 3, Strawberry-bush, *Euonymus Americanus*..... "Sago," Md. Some cultivated Willow, which we cannot name from the leaves alone....S. F. Bradford, Berrien Co., Mich. The Pale Corydalis, *Corydalis glauca*. We have often seen it in your State. It is pretty in the garden...."Inquirer." Apparently *Ornithogalum pyramidale*, but we are not sure from the specimen sent...."L. W. G.," Baltimore, Md. Reed Canary-grass, *Phalaris arundinacea*, a very coarse grass of little value...."J. W. R.," Bath, Me. Wake-Robin, or Indian Turnip, *Arisæma triphyllum*. Will grow in the garden...."D. E. R.," Port Royal, Pa. Viper's Bugloss, *Echium vulgare*, and a persistent weed it is. By all means prevent its spreading if it requires cutting over every day. Keep the leaves cut away as fast as they appear, and it will get exhausted in time...."A. L.," Exeter, N. H. No. 1, Shin-leaf, *Pyrola elliptica*. No. 2, *Polygala polygama*. No. 3, Three-flowered Bed-straw, *Galium triflorum*. No. 4, Four-leaved Loosestrife, *Lysimachia quadrifolia*.

Forcing Asparagus. — "Weymouth." This is done to a considerable extent in France and England, but very little in this country. In England the plants are forced in the beds where they stand; being planted with special reference to the purpose, with alleys for the reception of hot manure, frames and sashes being used to cover the bed. In France, three-year-old plants are lifted and placed close together on a hot-bed which is covered with a few inches of soil, and the roots are covered. A temperature of 65° to 70° is found most suitable.

Preserving Grapes. — W. H. Brown, Cass Co., Ind., asks about preserving grapes, stating that he has tried all the plans recommended, and failed. He does not say what kind of grapes he has tried. The Concord is a very poor keeper, and so are the Martha and Delaware; while Catawba, Isabella, Diana, Iona, Eumelan, and others, keep easily until Christmas, and often much later. Packing in small boxes of 5 or 10 lbs. each, after they have been picked a week or two, and then keeping in a uniformly cool place where they will not freeze, is the plan usually followed.

Meehan's Nursery.—Our friend Meehan, of the Gardener's Monthly, says so little about his own affairs in his journal that probably but few of his readers are aware that he has an extensive nursery at Germantown, Pa. In a hurried visit we did not have much time to look at his general stock, as we were too much taken up with the many rare old and new things which he has stowed away in odd corners. It is very pleasant to see a dealer in plants at the same time an enthusiastic lover of them; and we regret that we had not sufficient daylight to allow of the inspection of all the interesting specimens that Mr. M. has collected.

Budding.—" J. C.," Denton, Tex. The proper time to bud is when the bark of the stock lifts readily from the wood, and well-formed buds of the kind to be propagated can be obtained. The time will vary with the locality and with the season. Your partial failure may be due to one of several causes. The ties may not have been cut soon enough, or an unusual growth of the stock may have taken place and "drowned" the bud, as it is termed. Yours is a peculiar climate, and you will have to learn by experiment how to adapt your operations to it.

Fine Hollyhocks.—Our friend, William Chorlton, of Staten Island, sent us a box of hollyhocks which, for purity and delicacy of color and excellence of form, it would be difficult to excel. To call these "double" seems a misnomer, when the center of the flower is as full as it could be. Mr. C.'s seed was from Chaytor, a celebrated English grower.

Mr. Herstine's Raspberries. — Mr. D. W. Herstine, of Philadelphia, has been experimenting in the production of seedling raspberries. He sowed the seeds produced by the Allen, grown in proximity to the Philadelphia, and obtained a number of seedlings, the progress of which has been watched by the horticulturists of Philadelphia, with much interest. On the 6th of July, the Fruit Committee of the Penn'a Horticultural Society met upon Mr. Herstine's grounds for the purpose of deciding upon the qualities of these new seedlings, and giving names to such as they might consider worthy of cultivation. The meeting was the occasion of a remarkably pleasant horticultural gathering. The principal horticulturists of Philadelphia, and the most noted fruit growers of Burlington Co., N. J., were present, as were several from other places. The *American Agriculturist*, *Gardener's Monthly*, *N. Y. Tribune*, *Hearth and Home*, and *Germantown Telegraph*, were editorially represented. The Committee decided that four of Mr. Herstine's seedlings possessed qualities which entitled them to names, and these were called Herstine, Elizabeth, Ruby and Saunders. They are all large, red berries, of excellent flavor, very productive and hardy. They differ somewhat in the shade of red, in flavor and in foliage. Detailed descriptions of them will appear in the report of the committee. It was the unanimous opinion of the gentlemen present that Mr. H. had achieved great success in producing raspberries as hardy and productive as the Philadelphia, and which can rank "very good," as to quality. We shall be glad to hear that these new fruits prove as satisfactory elsewhere as they have upon the grounds where they originated.

What shall he Plant?—"P. W. J.," Fowler, Ill., has a piece of land on which he wishes to plant an orchard, and asks if he shall select Apples, Pears, or Quinces. As he is near a city, we should plant all three. Probably early varieties of apples and pears would pay best, and in the selection of these we should be governed by local preferences. A fruit that is unknown, though it may be of superior quality, cannot compete with a variety which is well known and a favorite. The advice of a dealer at the city where the fruit is to be sold would be better than what any one at a distance can give. Rea's seedling is the best quince, but the trees are rather scarce. The Apple or Orange variety is most cultivated for a near market.

Slugs and Striped Bugs.—"D.," Goshen, Conn., says: "I used to be troubled with the garden slug, or shell-less snail. They were especially destructive to tomatoes and cabbages. Supported the tomatoes on frames; then encircled the plants with bran, wheat or rye, at a distance of three or four inches from the stalk. After dark found the bran full of slugs, which could then be picked up and destroyed; or sprinkled salt on them, when they disappeared, seeming to deliquesce, or liquify. I think a circle of salt, while it lasted, would protect the plants. I never lose cucumber or melon vines with the striped bug. Use simply and only a square box, without any covering, say 14 inches square, and 8 to 10 inches deep, set about the hills at time of planting the seed, earthing up around the bottom. The bug flies indeed, but I have rarely found one inside of these boxes, until the vines showed over the top."

Patented Articles.—"Burdock" asks: "Can a man make an article on which there is a patent right, without paying a royalty or exposing himself to prosecution, if he makes it exclusively for his own use and not to sell?"—No.

New York Papers.—There are several papers published in New York which are exclusively or in part devoted to agriculture and rural matters. To read some of the agricultural papers published elsewhere, one would suppose that it were a crime or a blunder for a publisher to be located in New York. "Abuse the opposite counsel," is the motto with some lawyers, and "abuse the New York papers," seems to be the standing rule with some editors; so we get it in the lump and in detail. When these attacks are especially directed to us we mete out the worst possible punishment to the writers thereof—we do not notice them. One person recently imagined some private conversation with one of our editors, and published it in the vain hope of a notice. These individual and general attacks by writers at a distance, having had no effect, new tactics have been adopted in the form of correspondence from near N. Y. A Pennsylvania paper publishes one of these letters in which New York publishers and editors are put down as incompetent, because they will not publish this writer's articles. This is a censure which is, indeed, high praise; and we should not have noticed the matter but for the reason that some Southern papers have quoted this article as the testimony against New York papers. Editors from abroad can learn but little about New York newspaper people during their occasional visits here, or they would know that there is no place where merit is more promptly recognized, or where pretence is more quickly set aside than here. In New York a man soon finds his true level, especially in the newspaper line; he is judged by his work, and no self assertion will help him if that be defective. When a man has been weighed and found wanting, his best course is to go into some other line where he might be useful; but all do not think so, hence we have a class, known to the press as Bohemians, who pick up a precarious living by doing literary scrap-work. A few of these unfortunately hang around the agricultural press, waiting for some inexperienced publisher to pick them up, or try by underbidding, or by means of anonymous letters to supplant some one already occupying a position. These Agricultural Bohemians are generally men who, not succeeding at farming, come to the city with a small stock of facts and start as editors. They call themselves "practical men," and get upon agricultural papers; in a few months their stock of ill-assorted knowledge being exhausted, they are of no further use. Their next step is to attach themselves as agricultural editors to daily papers where they run for a short time and are dropped; they then get upon the staff of the "religious" papers, but even get found out there; at last they become regular Bohemians, wandering from paper to paper in the hope of selling their often rejected articles. They always have one resource,—it is not to go to work, for this style of "practical men" avoids that, but they can write letters to the country papers and abuse those who do not see fit to employ them. The wonder is not that such letters should be written, but that any paper should consider them worthy of publication. We doubt if a paper could be found in New York so wanting in professional courtesy as to open its columns to a wholesale libel upon the press of another city. The New York publishers are successful only as they make such papers as the people want, and one way they succeed in doing this is by keeping clear of these pretenders and Bohemians. There is a great deal of nonsense talked about "practical men." It is a taking phrase, and there are not wanting those who use it as an advertisement, and are continually vaunting their superiority in this matter. We have the greatest respect for truly practical men, but very little for those who, fearing that the world will not otherwise know it, are constantly telling how practical they are, leaving it to be inferred that they have a monopoly of that quality. As far as the *Agriculturist* is concerned, every member of its staff lives upon a farm, and works with his own hands; an example we would commend to those who, failing as editors, are now the Bohemians of the Agricultural press.

A Large Box-tree.—Growing against the old Belmont Mansion, now included in the magnificent Fairmount Park, at Philadelphia, is a remarkable specimen of Tree Box. The trunk is divided from the base into four parts, one of which is over a foot in diameter. The tree is some 30 feet in hight, but being placed close to the building it is not well shaped.

New York State Poultry Society.—The stated Semi-Annual Meeting of this useful Society took place at its rooms in this City, on Tuesday, July 12th. The action taken was in brief, as follows: 1st. An exhibition of useful and ornamental poultry, pet animals and poultry appliances. Living specimens of artificial fish-breeding and apparatus used in Pisciculture, will be made in New York, commencing Dec. 14, and closing Dec. 22d, entries close Dec. 11th. 2d. The fees for membership and the annual dues were reduced from $5 and $3, to $3 and $2, and the fee for life membership was reduced from $50 to $25. 3d. The action of the executive committee in establishing the Poultry Bulletin, which is sent free to members who have paid their annual dues, was endorsed by the Society. 4th. The whole subject of the adoption of a standard of points of excellence in poultry, was referred to the executive committee, with powers to adopt and promulgate. 5th. The borrowing of specimens to exhibit, and the conditional purchase of the same, with the same object, and with the intention to return them to the former owner, was declared a gross misdemeanor, exposing the exhibitor to the forfeit of all his premiums, and a member to suspension or expulsion.

Importation of Animals, etc.—The new Tariff admits duty free all kinds of animals from beyond the seas imported for breeding purposes. Also, animals brought in for exhibition and to be returned; also, animals with harness and tackle, owned by immigrants; also, eggs, and silk worms' eggs.

Artists.—All artists are not painters or sculptors, but we have artists among farmers as well. Well-arranged buildings, rooms nicely adapted to the uses for which they are designed and kept in perfect order, a stable well filled with good stock tastefully arranged, or an original landscape worthy of an artist's pencil, are scenes which some of our farmers are constantly bringing before our admiring eyes. Even a ditch may be made attractive and beautiful as was remarked of one we were examining a few days ago, 100 yards long, 4 feet deep, as straight as an arrow, 12 inches wide at the top and 4 inches at the bottom, graded to a hair, and the bottom as solid as hard clay; it drew forth expressions of admiration from every one who looked at it. Joseph Amberson was the artist, and he, with his gang, challenges the Continent to compete with him in ditching as to style, rapidity, and price of work. He may be addressed to the care of Col. Geo. E. Waring, Jr., Newport, R. I.

Vinegar Making.—"B. H." asks if it will accelerate the conversion of cider into vinegar to add yeast. As vinegar is usually made, probably not. What is needed is free access of air. The cider naturally contains enough ferment, and if it be exposed freely to air, the change takes place. Some secret and patented processes are founded upon this fact.

The "Fly" on Turnips and Cabbage Plants.—"D.," Goshen, Conn., writes that a mixture of equal parts of wood-ashes, plaster, and rye flour, sifted upon the plants while wet with dew, will successfully rid them of the "fly."—The flour is used to make the other ingredients adhere.

Black Ants.—N. S. Buckley says: "All articles set upon a cold stove or other cold iron are safe from the attacks of black ants.

Mice or Moles?—"Fowler," Orange, N. J., asks how to destroy mice which injure his bulbs. Are they mice?—They are more probably moles. In either case, some kind of a trap is, thus far, the best remedy.

The Colorado Potato Beetle.—Several inquire about "*the* potato bug." There are several beetles which live upon potato vines, the most destructive of which is known as the 12-lined Spearman, or Colorado Beetle. As we have already twice figured this insect, we will say that it is in shape somewhat like a large Lady-bug, yellow, and with twelve black longitudinal lines. The remedy that has been found most effectual is Paris Green. This is mixed with 8 or 10 times its bulk of flour and dusted upon the vines while the dew is on. A very slight quantity is said to be sufficient. A broad-mouthed bottle with a bit of gauze tied over it may be used for applying it. We give this remedy with the positive announcement that Paris Green is a dangerous compound of arsenic and a *deadly poison*. The use of Paris Green is commended in the journals of those States in which the insect abounds, and by our correspondents. If used, every care should be taken to avoid accidents, and the operator should be upon the windward side of the vines and avoid breathing the dust.

Oats Cut and Cured as Hay.—"H. L. B." Oats cut and cured as hay can hardly be said to have a market value; they are, however, constantly used in this way, and are found to be profitable. We should say, ton for ton, they would be worth as much as good timothy hay. The oats should be cut while the most forward heads are just coming into the dough state, and while most of the crop is still in the milk. If tall, they should be cradled and bound, as it saves labor in cutting. Oats should be cut small with a hay-cutter, and wet up with a little bran or meal when fed out.

Spurrey.—We are informed by a friend who is familiar with the use of Spurrey in Germany, that it is highly valued, in fact, regarded as indispensable in some sections, as fall feed for milch cows. It is sown after the rye harvest in July, or early in August, and affords rich succulent pasturage in October, upon which it is customary to tether the cows. See article on page 246 (July.)

"Superphosphate" Recipe.—"W. R. Y.," Myersville, Md., asks if the following recipe for making superphosphate is good. It is no superphosphate, but a rich nitrogenous and phosphatic manure, and we presume is one of those secret recipes which are advertised so often. Here it is:...."**For Corn or Wheat.**—Take 600 lbs. of good, rich earth, spread on a floor, and then add 500 lbs. of Peruvian Guano, 100 lbs. Sulphate of Ammonia, 500 lbs. Flour of Raw-Bone, 100 lbs. Pulverized Saltpetre, and 200 lbs. ground Plaster. 200 lbs. of the mixture for one acre."—This mixture would not cost less than $70 for the 2,000 lbs. directed, of which 600 is earth, and it certainly is not worth more than half as much as Peruvian Guano, which, sifted, and mixed with earth and plaster, we would prefer at $100 a ton.

Ashes vs. Guano.—"W. H.," of Snow Camp, N. C., proposes this conundrum: "What are wood-ashes worth per bushel, if Peruvian Guano is worth $100 per ton?" Really this problem is about equivalent to this: If broadcloth is $7 a yard, what will a pair of shoes cost? Guano and Ashes are each used as manure—Broadcloth and Shoes are both articles of clothing. Almost anybody who raises grass, potatoes, corn, or cotton, can afford to pay 15 to 30 cents per bushel for good, quick wood-ashes, and often one might pay more with profit.—They may usually be bought for 10 to 15 cents per bushel. The use of Guano is to supply nitrogen and the phosphates. Ashes supply potash chiefly.

Self-milking Cows.—A cow sometimes gets the habit of milking herself, and as she appears to enjoy both the operation and the milk, it is hard to break her. We published some years ago a highly recommended cure, which was to slit the cow's tongue about 2 or 3 inches. Some readers tried this, and, failing, tried two square yokes placed on the neck and braced apart with iron bolts so that the cow could not get her head near her side. This was of course effectual. Now we have a letter from A. Allan, of St. Louis, Mo., saying that the yoke arrangement did not work, for the cow would break it, and that the tongue-slitting worked like a charm.

Cows that Hold up their Milk.—"N. M. F." It is very exasperating to sit and handle a cow's teats and vainly try to coax her to let down her milk, but we know no cure. Sit quietly and manipulate gently—after a while the muscles which hold the milk back will relax from sheer exhaustion, and you will get it. The plan we have often thought of putting in practice but have not, is to arrange a lid which shall close the manger. Then prepare cut hay with meal upon it, or roots or other favorite feed, which the cow must be deliberate about eating; then when one sits down to milk let him draw back the lid by a cord and give Cushy a bite. If she withhold her milk close the crib and open it only when the milk comes down. We think she would appreciate the *cause* and *effect*, and so be cured.

Churns.—W. G. Kukman, Gibson, Ill. You can get Thermometer Churns of almost every large dealer in agricultural implements and machinery the country through—at least such has been the case. Other and better churns have been introduced of late, and it may be the thermometer churns are not so easily found. We prefer testing the temperature before putting the cream into the churn and while it is in the churn, by a common brewer's thermometer held in the hand.

Minks.—We have numerous inquiries where live Minks can be purchased for breeding purposes. Those who have them for sale should advertise.

Trouble with Cabbages.—"G. A.," Biddeford, Me., writes us a pathetic account of his troubles in raising cabbage; the larva, or maggot, at the root destroyed his crop in spite of all the preventives he could think of. Some time ago Mr. P. T. Quinn offered a reward for the best remedy, and he is this season trying a large number of those proposed, and promises to publish his results. We doubt if the manure had anything to do with G. A's trouble.

August Butter.—"A. W. K.," Monmouth Co., N. J. If the cows are well fed, or have good pasturage, and their milk is kept cool, especially if cooled as soon as milked, and the cream is churned two or three times a week, and ice or spring water is at hand to control the temperature of the cream, of the churn, and of the butter when it comes, there is no difficulty about packing butter all summer. With half-fed cows, milk kept in a warm cellar, and warm, sour cream a week old, you will have soft and miserable, lardy butter, if any, which is not fit to eat to begin with, and will be rancid in three weeks.

Industrial Exhibition.—A grand "Exposition" of Manufactures, Products, and Arts, will be opened at Cincinnati on Sept. 21st, and continue until Oct. 15th. Artizans, Manufacturers, and Inventors, are invited to exhibit, and can obtain a prospectus, giving rules, etc., by addressing "Cincinnati Industrial Exposition, Cincinnati, O."

Constitutions of Agricultural and Horticultural Societies and Clubs.—When men are really in earnest it requires very little machinery in the way of constitutions and by-laws to keep Associations together. Many societies spend so much force upon their constitution, that they have little left for their proper work. As we are frequently applied to for a form of constitution for clubs and societies, we give the following, which, with the necessary verbal changes, will answer for almost any society:

ART. 1. This Organization shall be known as the "Horticultural Society of Jo. Davies' County."

ART. 2. Its object shall be the advancement of Horticulture.

ART. 3. Its members shall consist of persons who have paid an annual fee of one dollar; and of Honorary Members of distinction in Horticulture and Agriculture.

ART. 4. Its officers shall consist of a President, five Vice Presidents, a Corresponding Secretary, a Recording Secretary, a Treasurer, and an Executive Board, which shall consist of a President and four other members; all of which shall be elected at the first regular meeting in the year, and shall hold their office one year, or until their successors in office are chosen.

ART. 5. The officers of this Society, and the Chairmen of the Standing Committees, shall be chosen by ballot, at the regular meeting in January, of each year, and a majority of all the votes cast shall be necessary to a choice.

ART. 6. There shall be the following Standing Committees: 1—On Orchards....2—On Vineyards....3—On Orchard Fruits....4—On Flowers....5—On Culinary Vegetables....6—On Entomology....7—On Botany and Vegetable Physiology....8—On Ornithology....9—On Small Fruits....10—On Wines....11—On Useful and Ornamental Planting.

ART. 7. The Society shall hold Monthly and other Meetings and Exhibitions as it may direct.

ART. 8. This Constitution may be amended at any regular meeting by two-thirds of the whole number of votes cast, one month's notice having previously been given.

Tobacco in Litchfield Co., Conn.—"A Constant Reader" is 18 years old, can hire a farm of 50 acres for $100, and inquires if without knowing anything about it he can make it pay by raising tobacco. We advise him to try some other crop first. Get a lease of the farm for 10 years with the right to purchase at a fair figure, if you wish. Then raise cattle and sheep and pigs, take horses to board, or in some way, keep all the stock you can keep well, and make all the manure possible. Then you can manure your corn land well, and top-dress your permanent meadows and get the farm in order, so that you and your man or men can keep ahead of the work easily; then lay out for half an acre of tobacco on the richest and warmest land you have, give it 50 to 100 big loads of manure, and take good care of the crop. Orange Judd & Co. have published a comprehensive little treatise on Tobacco for 25 cts., which it would pay you to possess. It contains the experience of several growers.

Labor from Castle Garden.—We cannot undertake to engage labor for our correspondents. We have ourselves frequently engaged men here and have obtained the poorest as well as the best help we ever had. One should come in person and pick out the men himself. If he is a good judge of character, he will be able to make a better selection than another can do for him. The officials, as far as our experience goes, are uniformly courteous and painstaking, but when they have brought the laborer and employer together, their duties cease. It is a well-managed labor market in which, as in all other markets, the purchaser must be a judge of the article.

Destroying Persimmons.—"J. A. M. R.," who lives in Georgia, is much troubled by persimmon "scrubs" in his fields. He wishes to know if any one can tell him a better way to destroy them than by the use of the grub-hoe and root-drag. Who is learned on the persimmon question?

Fleas upon Dogs.—"Cosmopolite." We have found an occasional washing with carbolic soap to keep the animals quite free of fleas.

Cranberries on Upland.—R. H. Rose and several others ask if cranberries will succeed on high, warm, and rich, sandy loam. We have no proof that cranberries have ever paid when grown on upland. The vines will sometimes be a long while in dying, and will produce some fruit; but we would not advise any one to undertake cranberry culture upon upland with a view to profitable returns.

Purification of Cisterns.—F. H. Robbins, of Allamakee Co., Iowa., writes: "Please inform me how to cleanse a cistern and keep it in good condition, and the water free from smell and taste?"—If it is foul, clean it out. If not, heat half a bushel of charcoal, and when in a glow, pound it into pieces as big as hickory nuts, and shovel them with the coarsest of the dust into a wet gunny bag or other coarse sack; put in a stone big enough to sink it, and, tying a cord to it, draw it up and down through the cistern, finally leaving it suspended near the top of the water one day and near the bottom the next. The results will be observed very soon, and will be permanent for several weeks, when the operation may have to be renewed.

Potatoes from Seed.—"F. H. M.," Scarborough, Me. When the potato balls are ripe, hang them in a dry place, leaving the seed untouched until time to sow. In the spring sow the seeds in a hot-bed or in a box in a warm window, just as you would those of tomatoes, and transplant to the open ground when danger of frost is over.

Fallen Apples.—"D. P." says: "Apples are dropping quite freely. Would it be of any use to spread ashes or lime under the trees to kill the worms that come out of the fruit?" This would be a very uncertain way of killing the larvæ in the apples. It is much better to gather the fallen fruit and feed it to the pigs.

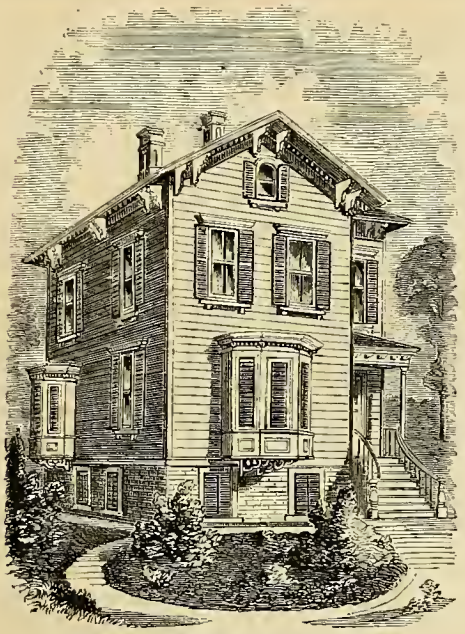


Fig. 1.—FRONT ELEVATION.

No. 9—A House costing $2,200 to $3,000.

This house we designate as No. 9 of the series mainly designed by MR. JUDD, and already tested or being tested by him. It will come within the range of a great number of families. The variation in cost will depend partly upon location and price of labor and materials, and more upon the style of work, cornices, moldings, plumbing, whether basement be finished or not, etc., etc. The variation may indeed go further, say from $1,800 to $3,500, without materially changing the general plan or size. A careful estimate, at the prices given in our July number, page 248, makes this house, in fair style and finish with good moldings, and the plumbing described below, cost about $2,800, without the land. In none of the plans thus far given, has special provision been made for a sleeping room on the first floor, as is customary in most farm dwellings. The stratum of air near the ground is always unhealthful, especially at night. Fogs, dampness, and malaria abound near the soil. We see heavy fogs along the ground when the air is clear at the hight of 10 to 15 feet. The same reasons that lead invalids and health seekers to go to the mountains or elevated localities, should always take lodgers to a second or third story at night. An invalid, too feeble to be daily moved, and requiring constant attention, may be necessarily placed upon the first floor—though by no means the best place for a feeble person—and a first floor bed-room may be indispensable in some cases, though it would usually be preferable to give up the parlor or sitting-room to such a person, temporarily.—All the outer walls are filled in with brick between the studding. The siding is the 1-inch thick "Novelty," described in fig. 6 of our March number.

Fig. 1—Elevation.—The engraving gives the general style and appearance, as nearly as the artist can do so from the builder's minute drawings, which are plain lines (not in perspective). The basement is mainly above ground, for reasons here and previously given. Three or four extra steps elevate the occupants at all times above the damp soil. For flat prairies, or other localities exposed to very violent winds, the house is proportionately too high. In such cases the basement may be lowered, and the attic be omitted, though the latter is always desirable, and adds but little to the cost, while it furnishes much store room and two or more sleeping rooms if needed. The basement, floors, ceilings, roofing, doors, windows, etc., cost no more for a house 20 to 25 feet high, than for one only 15 to 20 feet high. The cornice, it will be seen, extends well out—a great help to the appearance of most houses. The appearance can be materially improved by more brackets, and by dentals on the cornice; by heavier moldings, window caps, etc. The roof is covered with tin, which is nearly as cheap as shingles now, (8½ to 9½c. per foot,) and cheaper in some places. (For some styles of brackets, etc., etc., see our June number, page 208.)

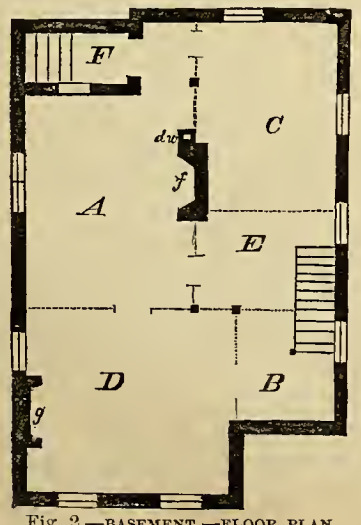


Fig. 2.—BASEMENT.—FLOOR PLAN.

Fig. 2—Basement.—Hight in clear 7½ feet. Walls of brick, 8 inches, with an air-space all through the middle, except where tie-bricks are thrown across. The whole Basement may be left in one room, as a cellar, with three or four piers of brick or locust posts firmly set on sunken, flat stones, to support the girders and partition walls above. The dotted lines show a good arrangement of basement rooms that may be made at first, or which can be put in readily afterwards if the means permit, or if the enlargement of the family require more room. The stairs and windows and fireplaces (*f* and *g*) should be adapted to this possible or probable use of the basement. In this case *D* would be the Dining-room, *A* the Kitchen, *C* the Cellar, *E* a large Pantry, *B* a Hall, *F* the rear entrance. Or, if desired, simply the room *A* may be finished off as a laundry or wash-room, or as a kitchen with a dumb-waiter, to be carried up, say at *dw*, or to whichever one of the rooms above is to be used as a dining-room.

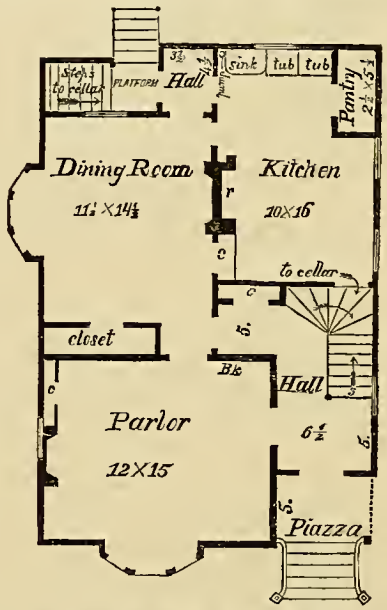


Fig. 3.—FIRST STORY.—FLOOR PLAN.

Fig. 3—First Story.—Hight in clear, 9 feet. A careful examination of the engraving will show the general arrangement, the economy of space, the "saving of steps" in the cooking, and other items of work, the provision for closets and pantries, *c*, *c*, *c*, *c*, etc. The Bay-windows add greatly to the apparent as well as real size of the rooms, and are ornamental to the exterior. The main hall and kitchen would be improved by adding 6 to 12 inches to the width of the house, where great economy is not studied, but they are of fair and convenient size, as indicated.——It will be noted that the doors, sink, pump, stationary wash-trays, and large pantry are placed near together to save steps. A cooking range, *r*, is intended, but a place for the copper boiler was overlooked. It was intended to put it by the side of the chimney where the door into the dining-room is now placed, and have that door the other side of the chimney where the closet is located; but that made the distance too great from the dining-room table to the kitchen sink. The chimney can well be placed a foot or so nearer the front of the house, and leave room between that and the door for the copper boiler. The exact location of every thing should be considered and decided upon before starting the foundations.——The rear, outside platform may be covered, or not, as desired. The stairs to the basement may be entered from the kitchen, or from the front hall when the basement is finished for a dining-room. There is sufficient head-room *under* the stairs to the second story.——*Bk*, in the Parlors, indicates a bell-pull to the kitchen. By passing the wire down and along the basement ceiling, a bell may be also attached in the basement kitchen (*A*, fig. 2). The stationery wash-tubs and sink are supplied with cold-water cocks from the pump, and hot-water cocks from the boiler. The force-pump

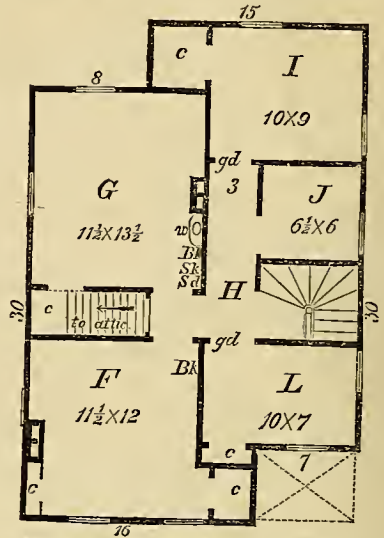


Fig. 4.—SECOND STORY.—FLOOR PLAN.

draws water from the cistern or well, and when needed forces it into the tank placed in the Attic or elsewhere.

Fig. 4—Second Story.—Hight in clear, 8¼ feet. The Hall, *H*, is lighted either by sash in the upper half of the doors, *gd*, *gd*, or by head-lights over these doors, which, if swung on hinges or pins, also serve as ventilators. (Ventilators, by the way, are to be placed in all rooms in both stories, with flues in the walls to carry the air to the attic.) Where needed, the flues may be carried through beams or girders, by piercing these with sundry auger holes for the passage of air, boring so as not to weaken the timbers too much. With the "Novelty Siding," firmly nailed on, a house is very strong, even though the timbers be very light, or weakened by cutting or boring. ——It will be seen that of the four larger chambers each has one or more closets. The room *J* will admit a 3-4 bed, or, it may be used for a bath-room or store-room. *F* and *G* may have mantels and fireplaces, or simply holes into chimney-flues, for stoves.——In *G*, the wash-sink, *w*, may be supplied with hot and cold water.——The stairs to the Attic are necessarily quite steep to afford head-room under the roof. The water-tank to catch water from the roof or receive it from the pump, for supplying the boiler, etc., is to be placed in the Attic, or if that be not raised high enough, it may be placed *over* the stairs, occupying the upper part of the second story. It may be of any desired length and width, and any where from 20 inches to four feet in depth. The larger it is, the less pumping up of water will there be. Water comes in from the roof, and when the tank is full, the surplus runs over through a pipe to the cistern. Wherever a Tank is placed, stronger or double studding should always be carried up from the basement, to support it firmly and safely.—— Bell-pulls, *Bk*, to Kitchen, are located in *F* and *G*, and in *G* a speaking tube, *Sk*, to the kitchen, and, *Sd*, to the front door, as described previously, for other houses.—— Blind windows are necessary back of the chimney, at the left of the Parlor, and of the Chamber *F*... In order to fully appreciate this plan, one will need to consider the many items taken into account, such as the least possible building of outer walls for the same space, the saving of steps in the arrangement of the working-rooms and apparatus, the securing of an abundant supply of closets or pantries, the provision for finishing off the basement in whole, or in part, whenever it may be desired, without much disturbance to the rest of the house and at small cost.

Dangerous Oils in Delaware.—The Council of the City of Wilmington, Del., appointed a committee of competent and disinterested citizens to examine the oils offered for sale. They presented an interesting account of their experiments, and summed up with the conclusions which we append, believing that the subject cannot be too frequently brought to public attention. Did a disease maim and destroy so many victims in a year as does unsafe oil, nearly every family would have a preventive or remedy at hand, at any cost. The preventive in the case of coal oils is a very cheap and simple one—let them alone. The following are the conclusions of the Wilmington Committee: "1. That Ocean Oil, Sunlight Oil, and Combination Fluids ignite at very low temperatures....2. Their vapors, when mixed with common air, are explosive...,3. They spread con-

flagration with great rapidity, faster than gunpowder, their vapor reaching out and taking fire from a flame at a considerable distance....4. Their flames are more difficult to extinguish than the flame of Coal Oil... 5. That these properties make them dangerous for common use for illuminating purposes.....That good Coal Oil, standing fire test of 110 deg., does not ignite so readily, does not form explosive vapors at so low a temperature, does not spread conflagration so rapidly, when ignited is more easily extinguished; and for all these reasons is much more safe for common use."

Swamp Meadow Parings—How to treat Them.—The turf, sods and bogs cut from swamp meadows, reclaimed for cranberry plantations or other purposes, when burnt or rotted, are useful as manure. "A. B. C.," writes: "I have a piece of upland joining a piece of low ground. It is often overflowed in the spring, and may be flowed at will. I have thought of preparing the wet part for a cranberry patch by taking off the grassy turf 3 or 4 inches deep, and covering with white sand. This turf I think would make an excellent dressing for my high ground, if well rotted. Shall I pile the turf, giving each layer a coating of unleached ashes, and pitching it over at a proper time? or shall I proceed in like manner, only using quick-lime, pounded reasonably fine, letting the lime slake in the heap by the water contained in the turf? It will be very difficult for me to obtain the necessary ashes, and it seems to me the lime will cure the raw muck in a shorter time. Which plan will be best? How long will it take? What quantity of lime or ashes should I use per cord of turf? and would salt be useful?"——*Ans.* A great part of the parings will probably be needed for the turf fences and dams, to retain the water. All kinds of mossy or, properly, grassy sods and parings decay easily, and may be treated as "A. B. C." proposes; but those kinds of grass (sedge), which grow in tussocks, form "bogs" or "nigger heads," which will be years in decaying, and are so tough it is of no use to spend time in cutting them in pieces. Those with roots, branches, etc., should be piled in heaps and burned when dry. The rest may be hauled off or laid up in heaps giving each layer a liberal dusting of lime, about 1 or 2 bushels to the load, say 4 or 5 to the cord (100 bushels). Salt will be of value at a distance from the sea coast; and the length of time will depend a good deal upon the amount of lime or ashes used. It is almost impossible nowadays to get ashes. If worked over, in about 6 weeks the heap may be fine enough for use, but it would probably be best to wait until spring.

Is Red Clover Poison?—W. G. Kuykendall, Putnam Co., Tenn., has known a good number of cattle lost from grazing on red clover. "They seem to have colic and usually die very suddenly. What is the *cause, preventive,* and *cure?*"——*Ans.* The cause is the fermentation of the clover in the rumen, or first stomach, forming gases, which close the entrance, cause the stomach to be fearfully inflated, and the whole body to be so swollen that the action of the lungs ceases and the poor beast dies of suffocation. This is called the *Hoove*, and the animals are said to be "*hoven.*" The cure is to introduce the probang, which is a flexible tube made for the purpose, and which is stiff enough to be forced through the valve-like entrance to the rumen, yet flexible and elastic enough to accommodate itself to the bends in the gullet. Through this the gas may be let off, and water pumped in with a stomach-pump, to dilute the sour contents of the rumen and wash it out. A probang and stomach-pump ought to be the property of every large farmer. When no probang can be had, try tying a straw rope in the animal's mouth making it fast over the head back of the horns. The efforts of the beast to get rid of the rope will often cause an eructation of wind. Immediate relief of animals may sometimes be obtained by puncturing the abdomen near the loin with a knife or trochar, which is a knife and tube combined, so that there is little danger of the contents of the stomach being forced into the cavity of the abdomen, which often causes fatal effects. Thus the gas is let off and the beast relieved. *Prevention* is, however, far better than cure. This is effected by allowing animals when first turned into clover pastures to remain but an hour or so at a time until they get accustomed to it, and will not eat so ravenously as to overload their stomachs. Calves brought up by hand are liable to similar attacks, brought on by indigestion and the fermentation of the food in the rumen.

Harvesting Pea-nuts.

The following is from the Report of the Department of Agriculture for 1868: "The time for harvesting the crop is from the 15th to the 30th of October, immediately after the first frost. When the crop is forward, or when it is an object to get a portion of it early in market, the operation may be commenced in the latter part of September; but the longer the vines continue to grow, the greater will be the number of sound pods. Select a time when the weather is settled and favorable, and with three-pronged hoes loosen the vines along the rows. Hands follow the digger, pull up the vines, shake the dirt from them, and leave them in the same place. In dry weather they will be sufficiently cured in two days to be shocked. Showery weather, though it may somewhat delay the curing, does no injury. In shocking, provide stakes 7 feet long, made sharp at both ends; then lay two fence rails on the ground as a foundation, but with supports underneath to afford free access to the air. The stakes are stuck in the ground at convenient intervals between the rails, the stacks built up around them, and finished off by a cap of straw to shed the rain. The diameter of the stack is made to conform to the spread of a single vine. After remaining about two weeks in the stack the picking should be begun, taking off none but the matured pods. These are to be carried to the barn, and prepared for market by completing the drying process, and then fanning and cleaning. The most tedious part of the work is the picking. An expert discriminates at a glance between the mature and immature pods, but cannot pick more than two and a half or three bushels per day. A machine to perform the operation would be a most valuable invention. Unless the management in the barn is carefully conducted, there is great danger, where there is much of a bulk, that the peas will become heated and mouldy. The condition in which the early deliveries are often received at market renders this caution quite necessary. In fact, there is as much slovenliness in the handling of this crop as there is in regard to any other; perhaps more, for the reason that so many inexperienced persons engage in the culture every year. Until the pods are thoroughly seasoned, the bulk should be frequently stirred and turned over. A certain classification, in respect to quality, obtains in pea-nuts as in every other article of agricultural produce. The descriptive terms in general use are 'inferior,' 'ordinary,' 'prime,' and 'fancy;' but these are not so definite as to admit of no intermediate grades. Assuming *prime* to be the standard, and that the *prime* are $2.75 per bushel, then *inferior* will be worth, say, $1 to $1.50; *ordinary*, $2 to $2.50; and *fancy*, $3. Seed pea-nuts always command an extra price, ranging from $3.25 to $3.50. These were the current prices for the crop of '68."

Bee Notes.—*By M. Quinby.*

The Apiary in August.—Where there is buckwheat, bees begin to store the honey, from the 1st to the 10th of this month. Boxes containing white honey should be removed even if not quite full. Four pounds white honey are worth as much as six of dark. Very little buckwheat will discolor it badly. Where there is no buckwheat, no addition to the stores of the apiary need be expected, save, perhaps, in a few exceptional localities—the western prairies, for example. So, as a general rule, unless there is a prospect of buckwheat honey, all surplus boxes may be removed now. The combs will grow dark if they are left on. Boxes put on now will not be filled except under very favorable circumstances—you will only get the glass stained with propolis.

Look well to weak hives now, for they are in danger from the moth. Keep bottom boards clean. If weak colonies are in movable frames, give them a comb or two each, of sealed brood from strong ones. Look out for barren queens and queenless hives, supplying deficiencies where you find them. If in box hives, it is generally best to break them up and secure the contents. The same is true of badly diseased ones. It will sometimes pay to drive out such swarms, if there is buckwheat. A few combs made by swarms so driven into empty hives would be valuable another year. Examine colonies that have been divided as heretofore directed. If the division without a queen was strong, drone comb will have been made while rearing queens. Remove it, replacing with empty frames, that worker combs may be constructed. Honey in such drone comb is of good quality and may be of use to feed in winter if not wanted for the table. The season here has thus far been propitious, and possibly too much honey may be stored to leave room for breeding. The only remedy with box hives is surplus boxes furnished with plenty of white comb to draw the bees into them. In case of movable frames, control the matter by removing full combs and replacing with empty ones. Put empty combs near the center alternately with full ones. If it is desired to raise Italian queens late in the season after the native drones have been destroyed, provide Italian drones by removing the queen from a strong stock and putting her in a large, movable comb hive. Put in the same hive with her such combs from other hives as contain Italian drone brood, and after eight days remove all queen cells that may be found.

Bee Books.—"W. P. M." asks: "Which is the best and most practical work on the Honey-bee?".... Those who desire a scientific work on the Honey-bee would be much pleased with Langstroth's. There is little but practical teaching in "Quinby's Bee-Keeping Explained," advertised by O. Judd & Co. Langstroth's book gives a description of his hive, but I do not know who has it for sale.

Italian Bees.—W. P. Moore, Richland, Tenn., would like to know, "1st. The comparative value of Italian and native bees. 2d. Whose or what hive is best. 3d. What sort of shelter-house or place is best suited for hives.....(1.) After nine years' experience with the Italian bee in the same apiaries with the natives, and in every variety of season, I can speak decidedly in their favor. I consider them at least one-third better in every respect when properly managed. For instance, their tendency is to store so much honey that the space for rearing brood is too much reduced, and it is necessary to use some sort of a movable comb hive so that full combs of honey can be removed, and empty ones put in their place, to give sufficient room for brood. Thus, by intelligent management they may be induced to gather more than the usual amount of honey and increase largely at the same time.

(2.) If increase of colonies is more desired than surplus honey, a simple movable comb hive would be most suitable; but when surplus is the main object, the hive described in the June No. of the "*Agriculturist*" will answer a better purpose than any I have ever used.

(3.) I do not approve of any kind of a bee-house as a shelter for beehives. Let the hives have separate stands but a few inches from the ground, with substantial roofs to protect them from sun and rain.

Straight Combs.—J. F. Brill, Kanawha Co., W. Va., says that to induce bees to build straight combs in common box hives, he draws lines across the under side of the top board, with melted wax, applied by means of a sash tool. The bees build their combs upon these lines of wax and make them straight.—I tried the method thirty years ago and found, like most other plans, it would not prove a success in every case. The bees will follow the lines in perhaps three-fourths of the instances.

Do Bees Freeze?—S. P. Creek, Olney, Ill., wants a decision on the following: "Do bees 'freeze up' and become torpid during any part of the winter, and then thaw out? Some of us contend that they do not; others that they do, and that the honey and wax take the 'frost out of them,' just as the earth takes it out of some kinds of vegetables."....It is surprising that any one with any experience whatever with bees, should maintain the above absurd view. It requires but a little intelligent observation to convince the most obtuse, that bees do *not* freeze up in cold weather, and thaw out in spring. The consumption of the honey does considerable towards *keeping* "the frost out," but when bees are once thoroughly frozen, they will not revive. I would ask those who believe that bees freeze up what becomes of the 20 or 25 lbs. of honey that disappear during winter, if the bees are torpid during that time?

Tobacco in August.

Tobacco, as cultivated in the Northern States, if well established by the first of July, in rich, mellow, clean land, is doing well. By the first of August it will be surprising to witness its rapid growth. The great leaves are rapidly concealing the ground; the plants stand, each a pyramid of tender, vivid green leaves, and as the breezes turn up the paler nether sides, the crop strikes one as very beautiful.

Worming.—With the growth and fairness of the crop the farmer's anxiety increases. The worms must be watched, the sphinx, or hawk-moth, will lay her eggs nightly, and the quickly hatched worms will eat voraciously. Young turkeys are a help in keeping them down before the plants are large, but they damage the great, brittle leaves. Hand-picking is the only security; though the use of strychnine in honey placed in the great bell-like flowers of the *Stramonium*, or "Stinkweed," or in those of the yellow Evening-Primrose, will destroy the moths. The flowers may be picked, baited, and set about the borders of the field.

Topping should begin as soon as the plants have attained sufficient size. After a little experience the proper hight at which to top will be easily judged of. The operation consists in breaking off the flower stem at such a hight that the leaves will be best matured, or ripened. The plants vary in vigor, and some attain sufficient size as early as August 1st, others not until late in the month. The earlier, the higher the topping should be. In the Connecticut Seed-Leaf variety 12 to 16 leaves are usually left upon the stalk. They are not counted, but the place where the leaves grow rapidly smaller indicates the spot to break off the stem. This is usually between two and three feet from the ground. After topping, worming continues, and the breaking off of the suckers, or side

shoots, called "suckering" continues until the plants are ready to cut up. This is when the leaves are ripe—the veins swollen and turgid, the leaves harsh, not soft and pliable like growing ones, and if folded, the lower side out, will crack with a clean, brittle fracture. Should a considerable part of the field be like this, cut and hang up; but this work is usually done in September.

Horse Papers for Farmers.—No. 7

In casting about for a substitute for trotting speed, any horse-breeder who has given attention to the present condition of the American horse-market, will probably hit upon beauty of form and stylish action as the most promising features. Really handsome horses for private carriages, are so rarely seen, that it may almost be said they do not exist. If any one will take pains to examine the carriage-horses in the Central Park in New York, and at the various watering-places, he will acknowledge the truth of this statement. There are a good many well-grown, rather fat animals, with bushy manes, and large, curly tails, to which good grooms manage to give a tolerable appearance by dint of warm blanketing, and by curbing their necks into an unnatural position. But, strip these horses of their gorgeous harness, and lead them out with their halters only, and they will assume their proper stations as thorough-going lunk-heads. By nature, they generally have coarse coats, flabby muscles, defective joints, flat feet, short necks, big heads, and a clumsy action. Their movement is too often that of animals who find their own weight a sufficient burden. They are only accepted for their work, because they are the best that the market affords. A friend recently told me, that he had sent an experienced man all through New England, and as far west as Ohio, without finding for sale a single span of horses such as he wanted for his carriage. After having given considerable attention to the subject, I am satisfied that there are not in all New York City, five pairs of really fine carriage-horses; nor is the number likely to increase so long as it remains the custom with breeders to seek almost exclusively rapid trotting action,—a search that is very seldom successful, and that brings into the world a vast crowd of third-rate and fourth-rate horses, of very low average value.

The typical carriage-horse was well shown by John Leech, in some of his drawings for "Punch." Its most important condition is a large infusion of thorough blood. Such an animal is rather lean than fat; tall, muscular, and active. Its coat is thin and glossy; its mane and tail not too abundant, the hair being straight or slightly waving, and of the texture of silk. The pastern-joints, instead of carrying a cart-horse's tufts that require constant clipping, are naturally clean and smooth. The hoofs are large and well formed, and neither too flat nor too steep, though this is a point over which breeding has perhaps less control than over any other, indicating that it has received less attention than more conspicuous features. The legs of such an animal are short below the knees and hocks, are broad, as viewed from the side, and thin, as seen from the front or rear. The knee and hock joints themselves are large and bony, and free from puffs and bony excrescences. The legs above these joints are long, the longer the better; and the various muscles and sinews are clearly defined under the soft skin. The shoulders are very sloping, and the withers rise well into the hollow of the saddle. The back is short from the withers to the top of the hip, and long from here to the root of the tail, which is set on level with the spine, and naturally carried well up when the animal is in motion. The neck is long and muscular, but by no means thick or fat, and its crest is high and thin. In its natural position, without the help of the check-rein, it should be nearly if not quite level for eight or ten inches back from the ears. The ears themselves are long, thin, and active. The head small and not Roman-nosed; the eyes prominent and the nostrils large.

A pair of such horses standing from 15½ to 16 hands high, reasonably young, free from important defects, and well broken, could probably be readily sold for $10,000. If they were as plenty as they might be, they would still bring a fourth of that price. Such horses need no check-reins to keep their heads in position. The conformation of the shoulders, neck, and crest secures this. Such a horse's head is perfectly and evenly balanced in a position that we cannot hope to attain by any amount of checking and martingaling with the ordinary carriage-horses of the day. Every movement that such a horse takes is graceful and strong; his whole appearance indicates intelligence and nervous vigor. He cannot be ungraceful and he cannot be dull. He may or may not be fast. For carriage use this is of minor consequence. What is wanted first of all, is style, and a stylish action in moving heavy loads, which only great natural strength and vigor can make possible.

Of course, such animals as are here depicted are more nearly perfect than it will often be our lot to see, but the standard is one toward which it is always safe to aim. We can only hope to attain it by using means which can hardly fail to produce horses of more than ordinary value, and the more nearly we approach the standard, the higher the price that we may hope to get. Probably if two farmers were in a systematic way, the one to breed fast trotters and the other to breed such carriage-horses as are here described, the trotting man would raise more animals worth $5,000 each, than would the other; but he would produce ten or twenty times as many worth less than $500 each, and the balance of profit would be largely on the side of the carriage-horse breeding. I believe, in fact, that the *average* value at four years old would be fully twice as great in the case of the carriage-horses as in the other; while, of course, there would still be chances, by no means insignificant, of raising now and then a very fast trotter, and a good proportion of excellent roadsters. It is to be claimed for this sort of breeding that it has no greater element of risk than the breeding of Shorthorns or any other animals whose merits depend on a harmonizing of all good qualities. Where the only thing sought is a rapid trotting action, so many defects are disregarded that there is room for all manner of constitutional weaknesses to creep in, and it becomes a game of a few great prizes and many blanks.

It is hardly necessary to say that in breeding carriage-horses, it is our advice to use only the best thorough-bred stallions. This we regard as indispensable in all breeding, and we have dwelt sufficiently upon its importance in preceding articles of this series. This point being assumed, the key to success lies in the selection of suitable mares. The dam of a fine carriage-horse, or of any first-class horse of all work, should be bred rather than bought. That is to say, there are so few suitable animals to be found in this country that it would be shorter and surer work to breed any considerable number of them, than to hunt them up in the market. If anything less than perfection be the object, there are thousands of good mares with whom the chances of success would be tolerably fair.

An important consideration in carriage-horses is good size, and this must be sought chiefly in the dam and the grain bin. Strong feeding will always increase the growth of a colt, but there is some danger that he may grow to an ill-shape, if forced much beyond his natural development. The dam of the carriage-horse need not have more than one-half thorough blood. This much is essential; for the gamey look and high stepping action, the bony, muscular, stylish appearance that we have described, can hardly be had with less than three-quarters pure blood. As much more than this as can be attained without loss of size will be advantageous; but thorough-bred animals are rarely large enough for heavy carriage-horses, and are often deficient in the knee action essential to the most stylish gait.

My own ideas as to the best system of breeding for carriage use are derived from Frank Forrester, who was unquestionably our best authority in these matters. His theory, which seemed a reasonable one, was that, considering the large size and high action that it is desirable to have, and considering also the importance of infusing as much thorough blood as possible, without detracting too far from these qualities, the start should be made with the largest and most stylish mares that it is possible to get. In his opinion the French Percheron, or Norman, would best supply these conditions. The Percheron mare is very large, has a good shoulder, and has a particularly fine action. At the time of his death he contemplated importing six of these mares intending to cross them twice with thorough-bred horses. All of the first cross, except the mares selected for breeding, would have found a ready market at profitable rates. They would even have made fair, heavy carriage-horses and would have been capital for omnibus teams, etc. The second cross, (three-quarters-bred), he believed would be finer and more valuable than any other carriage-horses that it would be possible to obtain. But he would have selected the finest of these mares to cross again with the thorough-bred, hoping in their progeny to obtain the perfection of carriage-horses and weight-carrying saddle-horses.

These suggestions may be valuable to farmers who propose to make horse-breeding the principal item of their business, but their operations are of much less consequence, so far as the good of the country is concerned, than is the incidental breeding of small farmers who raise one or two colts every year. It is to such that my remarks are chiefly addressed, and it would not be within their power to provide themselves with Percheron mares for the sole purpose of breeding. Their wisest course is, to provide themselves for their farm work, with the best mares that their circumstances will allow them to get, securing at least blood-like look, fine action, and a good constitution. That is, securing precisely the sort of mares, that are best adapted for work in their own teams.

I cannot convey a better idea of the kind of mare it is recommended to use than by condensing a description given in "Herbert's Hints to Horse-keepers." In frame the mare should be so formed as to be capable of carrying and well nourishing her offspring; that is, she should be what is called "roomy." The form of hip that is considered the most elegant, where the tail is set on very high and the haunch-bone is nearly as high as the hip, is particularly unfit for breeding purposes. The sloping hip gives much

more room for the carying and the birth of the foal. The back, too, should be of a little more than the average length, giving plenty of bed for the foal and strength for the support of its weight. She must have four good legs under her and those legs standing, as a foundation, on four good, well-shaped, *large* feet, open at the heels, and concave underneath. "She should have a good, lean, bony head, small-eared, broad-fronted, well set on, upon a high, well-carried neck, thin at its junction with the head; high withers, thin, and, above all, long, sloping shoulders. A straight shoulder is an abomination; it renders speed impossible, and gives a rigid inflexible motion, often producing the bad fault of stumbling. She should be wide-chested and deep in the heart-place. Her quarters should be strong, well let down, long and sickle-shaped above the hocks. It is better that she go with her hocks somewhat too wide apart, than too near together; the former indicating power, the latter weakness of a bad kind."

The brood mare's health should be as nearly perfect as possible. This is the most important point of all. Accidental defects may be passed over, unless they indicate a constitutional weakness of the affected part. Spavins, ring-bones, and all bony enlargements are constitutional and may be perpetuated. Bad feet should be especially avoided, unless they have obviously arisen from bad shoeing. Broken-winded mares are out of the question, as they seldom breed. "Blindness may or may not be hereditary. * * * Simple cataract without inflammation undoubtedly runs in families, and when a horse or mare has both eyes suffering from this disease without any other derangement of the eyes, I should eschew them carefully. * * * * Nor should we breed from a mare which has any affection of the eyes, unless it be the direct result of an accident, such as a blow or a puncture."

Any farmer who has the natural eye of a breeder and a fondness for good horses, will recognize a mare coming up to this standard if he is fortunate enough to find one, and he will be wise not to breed from an animal which has much falling off from these points.

A California correspondent asks the following questions: "1. In a span of horses, ought the quicker one to be put on the off-side or on the near-side? 2. When they are hitched up, should the manes be toward the outside or the inside? 3. Are horses permanently injured by having had the colt distemper? 4. Are the Gad-flies that sting horses on the nose the same as those that lay their eggs on the horses legs?"

1. The quicker horse should be on the near-side, bringing the duller one nearer to the whip. 2. It is the custom to train the manes toward the pole. 3. The colt distemper is not permanently injurious, unless, from neglect, it is allowed to leave such an enlargement of the parts as to interfere with respiration. 4. We are not aware that the Gad-fly *stings* the horse. It is a different fly from the one which deposits its eggs upon the legs.

A Delaware correspondent accepts without question our statement that we should breed only to thorough-bred stallions, but maintains that the high price charged for service, sometimes $200, acts, in the case of the ordinary farmer, as a prohibition. The very high prices, from $100 upward, are charged only for the most celebrated horses. Very good thorough-breds that are a little too slow for the turf may be bought for from $300 to $500, and if they were sure of being well patronized, they could be profitably kept at a $10 fee. The only difficulty is that the farmers themselves do not realize the superiority of thorough blood, and unwisely take their mares to trotting stallions or to low-priced animals that have no other merit than cheapness. Let there be created a general demand for thorough-bred stallions, and it can be cheaply supplied.

Ogden Farm Papers—No. 8.

How easy it always is to raise a crop of corn before the seed is planted! Up to the day when the planting was completed, the prospect was as fair as could have been desired, and it was comfortable to look forward, over the easy cultivation, and the good time generally that was to attend the raising of the crop. No sooner, however, had the corn begun to sprout than the skies began to lower. While much of the country has been suffering from drouth, we have had, for a month after corn planting, such a succession of rain and fog,—and fog and rain, as is known only along the Naragansett shore. It has been the loveliest weather for weeds and grass; and the condition of the ground has been all that crows and pigeons and other lovers of sprouted corn could ask. On trying the smoothing-harrow, I found that we had so many loose clumps of turf on most of the field, that the teeth became filled with rubbish that did considerable harm if they happened to come in the line of a row of corn,—though it is but fair to say, that the small piece on which the experiment was made as the corn was coming out of the ground, has been the cleanest and the best looking part of the field ever since, in spite of the tearing out of a good many plants. Where the land was plowed last year,—the harrow has worked well, and has done great service. But for our very shallow plowing, we might have covered the sod deeply enough to leave smooth work over the whole field. The harrow having failed me, and my force being rather small, the bad weather got decidedly the better of me, and things looked rather desperate by the 20th of June. Either the corn must be given over to the choking grass and weeds, or the turnip planting and the last planting of corn fodder must be too long deferred. My neighbors who had planted in hills, and could cultivate both ways, were badly enough off, but their condition was happiness as compared with mine. If Ogden Farm were in a thinly settled neighborhood, one or other of our crops must have been finally swamped. Fortunately, at this time, the landscape-gardeners in Newport had just got through with their rush of work and I was able to call in the temporary assistance of twenty men and three double-teams. The way weeds have been cleared away, manure hauled out, and plowing done, has been decidedly cheering, and we can now go ahead with clear consciences and light hearts. The heavy spring work being fairly over, it will be easy enough, with any tolerable weather to keep the farm in order. This work, though requiring a considerable outlay within a short time, has cost no more than if few men had been hired for a longer time, while the cost and bother of superintendence were decidedly less; and there is no question that it is cheaper to hoe with a dozen men in one day than with one man in twelve days; for we save on a part of the field, eleven days growth of weeds.

Later.—A few days after the hoeing was finished, just as the weeds began to take a fresh start, I brought out the smoothing-harrow again for a final cleaning of the ground. Alas for my hopes! A single bout over corn 8 or 10 inches high, showed plainly enough that, in our case at least, the implement was a failure for the cultivation of corn. It destroyed too many of the plants for its continued use to be thought of. I have no doubt that the fault lay greatly with myself, and that more knowledge of the angle at which the teeth should be bent to suit the requirements of our particular soil would have rendered its use a success. But a fairly started corn crop is a costly thing to experiment with, and I have concluded to stick to the good old back-breaking way and hoe out the drills once more by hand,—letting the crop take its chances thereafter. This smoothing-harrow is a capital tool for many uses, and will prove a good investment without reference to the corn hoeing. Hereafter, however, I shall not be easily tempted to plant in drills. The saving of labor by cross-cultivating among hills is too important to forego.

It is getting to be a question with me, indeed, whether it will pay, on a farm where much labor is employed, to raise corn at all at the East. If there are too few hands to admit of root culture then corn may do very well; but if roots are to be raised, much of the work that the first hoeing of corn demands will pay better if applied to the preparation of land for roots, and the work of the second hoeing had better be spent in cleaning and thinning the ruta-bagas. This question, though, is by no means answered by our experience thus far, nor is it very definitely answered by the communications on the subject that one sees in the agricultural papers. It should have the more careful attention of all farmers with whom hay and live-stock are important items.

The case may be stated in this way. A good crop of eastern flint corn (60 bushels) is worth $75. It will cost that to buy its equivalent in other corn at present rates. The fodder will be worth about $10. This makes a total yield o $85 per acre. Now, an acre of good grass, receiving as a top-dressing applied during the winter, the manure necessary to produce 60 bushels of corn, will produce during the season (in three cuttings) three tons of *dried grass*. I use this expression in order to convey an idea of a very different and much better article of fodder than the fully developed hay that it is almost universal to grow,—grass cut when it begins to show its first sign of blossom, and when not more than two-thirds grown. Cut at this stage, it may be cut three times during the season; and the total quantity may easily be made to exceed my estimate. When the quality is considered, it is safe to fix its value at $60, while it will certainly cost $25 less for labor than the corn. In addition to this, the land will usually be in better condition as to richness than after the corn crop, and the danger of a fresh seeding with weeds will be lessened. In the mere matter of profit, the advantage seems to rest with the grass. And then, there are other things to be considered. First, the preparation of the land for roots and their cultivation, is much more likely to be well done if there is no big corn-field to require attention; second, haying can be commenced while the grass is in the condition indicated above, when, if postponed until after hoeing time, the growth is almost certain to be too strong, the stalks of the grasses too coarse, and the transformation of the nutritious juices into indigestible woody fibre, too far progressed. This last consideration alone may be enough to settle the point of "corn," or "no corn," while it is not to be forgotten that one who buys his feed in the market can often get

the equivalent of a bushel of corn for considerably less than this would cost,—especially when due allowance is made for the value of the manure left after consumption by animals, which is, according to Lawes' Tables, $6.65 from corn costing $40 per ton; $14.59 from wheat bran costing $32 per ton; and $19.72 from linseed cake costing $60 per ton.*

Still, for all this, the question is still an open one with me, as with most eastern stock farmers; and although the argument and the figures seem to be all one way, the force of old habits, the custom among our neighbors, and the disinclination to try novelties may continue for a long time to maintain the supremacy of "King Indian," even at Ogden Farm.

So long as corn is to be raised, it is very desirable to devise some means by which the delay caused by cross-marking for planting may be avoided. It has been suggested that an apparatus may be made by setting two wheels of equal diameter at a proper distance apart, to mark the rows in one direction, and to put studs on their rims, to mark the proper distances of the hills. Guide-rods, carrying light chains, could be run out from each end of the axle. The first row should be marked out absolutely straight; then, commencing at one end of this line, with one stud of each wheel directly under each axle, the marker should be moved across the field on the line of the row. The studs will mark the positions of the hills for the first two rows. In returning, for the third and fourth rows, let one of the chains hang directly over the second one, and set the studs exactly in range with the hills first marked. Very little care will be required to lay off a whole field in perfectly regular check-lines.

During the month of June our soiling was temporarily suspended. What with the poverty of the soil, its foulness, and the winter-killing that our open season caused, the clover field that was laid down last year (as a temporary make-shift and without manure), was not worth mowing, except where sea-weed had been applied as a top-dressing. The only thing to do was to feed off what clover there was, which amounted to a good deal, and to clip the white weed with a mowing machine. As soon as the rye became too coarse for feeding, the cows were turned on to the unmanured clover, and there is a fair prospect that it will carry them through until the sowed corn is ready. This will enable us to seed a part of the first and nearly all of the second growth of rye, and to cure for hay all of the oats provided for soiling.

This illustrates one of the safe-guards of the soiling system. The provision of fodder may be made as bountiful as you please; and there will be no loss, for every thing that is not consumed can be cured and stowed away for winter feeding. Oats cut at any time before they get beyond the "milk" state, seem to be as good as the best hay for winter use.

We are just commencing to keep a record of the weight of milk given every morning and evening by each cow. A printed blank for each week is tacked against the wall, and a lead-pencil hangs near it. As each cow is milked, the pail is hung on an ordinary spring scale. The pails being of uniform weight, it is easy to make the record sufficiently accurate for practical purposes. At the end of each week the total yield for each cow is footed up and divided by seven for the daily average. The total weekly yield of the whole herd is also recorded. The utility of such a record, especially if continued for a series of years, will be great. It will show:—1. The performance of each animal in her different conditions, and especially the degree in which she holds to her milk towards calving time. 2. The relation that the progeny bears in its milking qualities to its dam. 3. The milk-producing quality of the progeny of certain bulls. 4. The effect of different kinds of food, and of different systems of feeding, on the production of milk. 5. By comparing the weekly yield of milk with the weekly production of butter, the effect of feeding can be determined in regard to this latter.

The practical results of the knowledge thus obtained will be valuable. We shall know which animals to sell and which to keep; which bulls to breed from; which families to depend on for the final herd, and what methods of feeding it is best to pursue in winter and in summer,—this will be especially valuable as showing the relative advantages of soiling and steaming, as compared with dry feeding and pasturing, and the relative value of corn-meal, wheat bran, etc.

* Lawes' estimates are in *gold*, and the cost of the feed in *currency*.

Our present oat field stretches quite across the farm, and occupies portions of the land that was planted to corn in '68 and '69. Last year, the cornfield of '68 was occupied by ruta-baga turnips, for which a heavy dressing of manure was applied. This land has never been deeply plowed, and neither tract was manured this year. The oats are decidedly the best on the older tract. This is partly due, no doubt, to the double cultivation and manuring; but certain spots on the corn land of last year indicate that a still greater effect is to be ascribed to the depth of the plowing; for, wherever the clay turned up from the subsoil is visible, the oats are small and light-colored. It becomes more and more evident that our subsoil must be brought into good condition by degrees, and that it will be several years before it can be made to render good service at the top.

Where this deeply plowed land has been manured this year, the result is much better, and the fodder corn planted upon it looks very well. It is worthy of note, that wherever in the corn crop of the present year the rows strike the dead furrows, the growth is extremely small and yellow; the moment they leave these and touch the surface mould, the growth is dark and luxuriant. While I have been in every instance disappointed by the results of deep cultivation, I have been more than satisfied by the effects obtained by all operations that are confined to the immediate surface. On our poorest grass land, where little beside wiry grasses and sorrel grows, (or, at least, is noticeable), a copious dressing of stable manure brings into prominence the best of the natural grasses, and makes a crop that pays well for mowing and pasturing. At the same time, the ability to withstand drouth is vastly increased. This is by no means to be considered as establishing a general rule; only as indicating that the subsoil of Ogden Farm, which has been for years water-soaked and deprived of all atmospheric action, is yet so crude as to be little better than an absolute poison to cultivated plants. Now that the water has been drained away, and the air can have access to do its wonderful chemical work, there is no doubt that, after a few years, the nose of the plow may be safely sent some inches deeper. As, little by little, the roots of the clover and other crops find their way into the subsoil, they, too, will add to its fertility, and, on their decay, will leave inviting channels down which future roots will go to make a better, and, in its turn, a still more ameliorating growth. Until the good day comes when I can plow deeply myself, I shall do the best work I can near the surface, and shall continue strenuously to advise other farmers, whose subsoil is not thus defective, to plow as deep as possible,—satisfied that Deep Plowing is the Golden Rule of good farming, and that such exceptional cases as mine by no means disprove its general value.

I have recently made a tour among some of the breeders and importers of Jersey cattle in Massachusetts, hoping to find some choice animals for sale at a moderate price. In this I was disappointed. The inquiry for this breed, which my own correspondence had indicated, seems to have been even more active there. The demand from the West is increasing, and there were several large orders being filled for California. For the few cows that I especially coveted, I should have had to pay no less than $1,000 each, so I came home with only a very choice yearling bull, for which I paid a round price, and $200 worth of eight-months-old heifer. These high prices, however, attach only to choice animals; second-class stock, such as is brought by the ship-load, on speculation, from the Island of Jersey, is sold at very moderate figures, and, in my judgment, is very dear at the price. These speculators' lots are generally picked up from the cheap refuse of the Island, and are sold here to the large class, who attach more value to the simple fact of importation than to careful and judicious breeding.

I was for a long time perplexed by the failure of a valuable mare to get with foal. She is thirteen years old, and probably has never bred. After passing a year with a young trotting stallion without result, she came into my possession, and though frequently served by Dallas through two seasons, she continued to come regularly in heat. I searched high and low among the horse books for something applicable to the case, but I failed to find, not only this, but anything of value connected with the management of horses and mares at the time of serving. There is no reason why the literature of agriculture should be deficient in so important a particular, and those whose knowledge and experience qualify them to give the much-needed instructions, can render no better service than by so doing. Practical books failing me, I applied to practical men, and was at last told by a knowing old stable-keeper, to turn the horse and mare loose together immediately after the first union. The mare's shoes were removed, and immediately after the service the fetters and both halters were taken off. The animals were in a large barn-yard, with high fences; they were together for nearly half an hour. Owing to the restlessness of the mare, Dallas' most determined efforts were evidently unavailing, and they were separated. As it was very late in the season, the fact that the mare did not again come in heat was not taken as an indication that she had conceived. We have been watching in vain for her to come in heat again this spring, and have at last discovered the movements of an active fœtus and every indication of approaching parturition. Precisely how much this circumstance teaches, it is impossible to say. There was no complete union after the usual one at the halter, and such unions had failed steadily for two years. My theory is, that the presence of the horse and the mental effect of his repeated efforts caused the result.

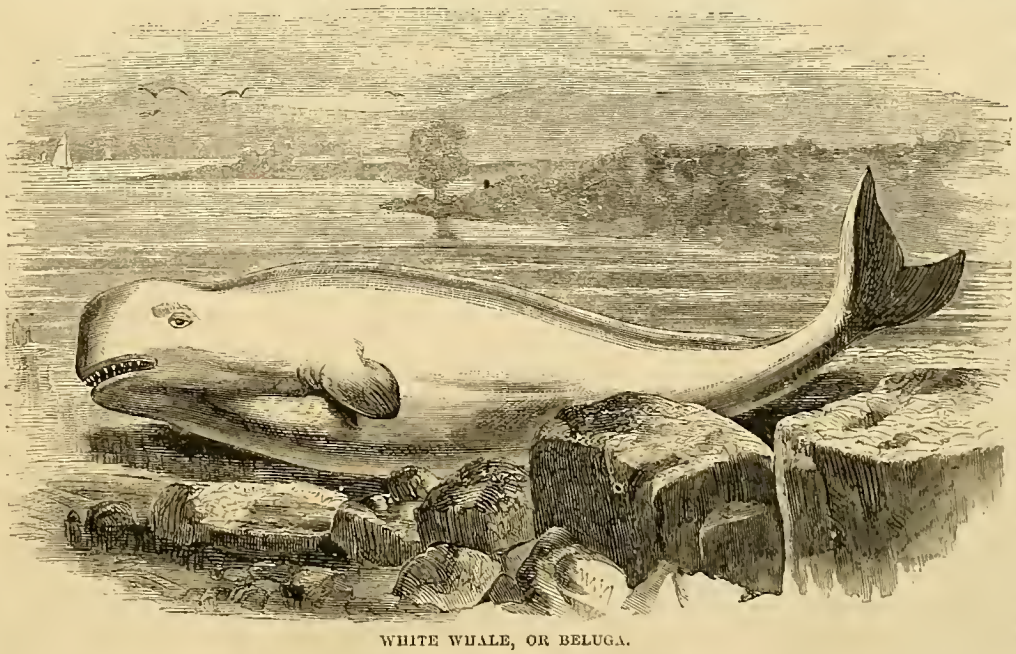
The Sea-Otter.

Our North-west coast produces several fur-bearing animals, and among the most valuable is the Sea-Otter (*Enhydra marina*), an animal which, while it is classed with the Otters, has many of the characters of the Seal. It is thus described by Baird: "The head is short and very broad; the nose obtuse, with a naked muffle, and with three rows of stiff, horny bristles. The digits of the fore-feet are very short and firmly bound up in a thickened membrane, which on the palmar surface is naked and granular. The hand is divided into four lobes, representing the digits, excepting the third and fourth, which are bound together and bear two claws above. The hind-feet have the outer toes longest, the rest descending from the fifth to the first; the under surface hairy, except under the balls of the toes. The hind-feet are directed much further backwards than in the common Otters, in this respect resembling the Seals, except that in the latter the hind-feet are crescentic in shape, owing to the middle toes being shorter than the lateral." The animal is about 6 feet long, and when fully adult is of a jet-black color. Sea-Otters were formerly abundant upon the coast of California, and are occasionaly met with as far South as Monterey, but they are now only plentiful much further North, in what was formerly the Russian Possessions, and now our Territory of Alaska. The best skins have been sold as high as $100 each, and are greatly prized by the wealthy Chinese. The fur on a first-class skin is so dense that when strongly blown upon, the hairs cannot be sufficiently separated to allow the least portion of naked skin to be seen. The Russians derived a large revenue from the sale of these skins, but it is said that the animals appear upon the coast in much smaller numbers than formerly.

SEA-OTTER.—(*Enhydra marina.*)

The White Whale, or Beluga.

What is called the White Whale, though it belongs to the whale order, is placed in that subdivision of it which includes the Dolphin, Sea-Unicorn, the Porpoise, and the Grampus. They differ from the Right and Sperm whales in many points; notably in having a proportionally smaller head, and in having teeth in both jaws. The White Whale (*Delphinus leucus*, or *Beluga borealis*, of some authors), is very abundant in the Arctic ocean, and is frequently found much further South. It is not rare in the St. Lawrence, ascending the river as far as Quebec. It is from ten to twenty feet in length; of a brownish color when young, but when full-grown, is nearly pure white. The tail is three feet broad and very powerful; by its means the animal is able to dart with great rapidity, and it is remarkably agile for so large an animal. These whales, or white-fish, as the whalers call them, follow the ships in large herds, showing the greatest boldness, as if conscious of their ability to escape pursuit. Their appearance as they tumble about, is described as very striking, their white bodies appearing in sparkling contrast with the dark water. Being so active, these animals are but seldom caught by the whalers, as the small amount of oil they yield is not sufficient to compensate for the time and trouble required in the capture. They are, however, of great importance to the inhabitants of the Arctic regions, who depend upon them for a large share of their food. Its habit of ascending rivers allows the Beluga to be caught with comparative ease. When the animal is found to have gone up a river or inlet, a strong net is stretched from bank to bank and chase is given in boats. The animal endeavors to escape to the sea, but its progress is stopped by the nets, where there are other assailants lying in wait for it, ready to despatch it by means of spears and other weapons. The skin of the Beluga, when tanned, makes a soft but remarkably strong leather. The flesh is highly prized as an article of food, though it is too oily to be acceptable to palates unaccustomed to Arctic fare. The oil is valuable for burning, the sinews are used as thread, and some of the internal membranes serve as a substitute for window glass. The "living whales" which figured so largely among the attractions of Barnum's Museum, were of this species. One, which was some time ago kept in an Aquarial establishment in Boston, became tame enough to be harnessed and draw a light boat containing a young lady around the large tank in which it was kept.



WHITE WHALE, OR BELUGA.

After Haying.—It has come at last. The words have often been heard and some promises have been made to the boys, that were to be fulfilled at this date. The hay is harvested, and they want to go fishing, or to the beach, or to a picnic, or fair. By all means let them go and have a good time; and let your blessing go with them, if you do not go yourself. Then you promised yourself if there ever came another dry time, you would get at least a hundred cords of peat out of the pond hole, that is not dry more than one month in the year. See that the promise is fulfilled to the letter. You can no more afford to cheat yourself out of a good thing than the boys. You have done using the reaper, the mower, the horse-rake, and tedder. Do not let them lie around in the field or under the shed, but put them carefully in the loft where they are to remain until next season. Put them up and oil them, ready for use to morrow. Then top-dressing your meadows and your pastures is in order. And the

sooner you put on the compost after haying the better for the roots of the grasses. If you are doubtful about this matter take a dozen loads out of your barn-yard and try it upon an acre of run-down meadow. You will make a new discovery and be converted. Then whether you top-dress or not, carefully guard your after-math against all cropping. To crop does not pay.

Walks and Talks on the Farm—No. 80.

The following letter, intended for me, was sent to the *Agriculturist* office, and the editor, who takes as much interest in young men as I do, wrote on it: "Here is a sensible boy, pray notice him."

"Nashville, Tenn., June 5, 1870.

"Dear Sir,—I have just been looking over your 'Walks and Talks', in which I find some advice to a man who has bought an overgrown Southern farm, and I thought it might not be improper to ask your advice about entering into a farming life. I intend going into details, so that you may better understand my case:

"I am 17 years old, stout frame, and have just finished my course of study, and received my diploma in the High School of this city, and wish to go on to a farm or market garden, as soon as possible; my idea being that the more time I spend doing nothing around home and town, the less I will have to get started and get broken into the routine of farm labors, and the less will be my chance of procuring a suitable farm. Besides this, if I intend to settle on a market garden, I should do so immediately; as manure now can be had for the hauling, and it will in a few years, probably, be as high as in Northern cities. I have a garden within the corporation of the city, of about one-quarter acre, on which I spend all my spare moments in raising all kinds of vegetables, and with whose culture I am perfectly acquainted. I have hot-beds and cold-frames at work in winter, and raise lettuce and other vegetables as recommended by the N. Y. gardeners. I read all the works on gardening and think I understand it. I also like and understand fruit culture, and desire to form an orchard on the Cumberland Mts. in East Tennessee, on which I could raise crops to pay expenses until the fruit should come in bearing.

"There are numbers of farms in the South which are being rapidly bought up by northern men, and greatly improved. My father is agent for ——, and desires much to move from the city where it is such expensive living, and settle on a farm in the country. He travels over the country, and thus has a good chance to find out the desirable farms. We have thought of moving to the northern wheat regions of Texas, or on some of the new routes of railroads of the West. It may be well in consideration of the question, to state that one or two thousand dollars is about all we can raise, except by borrowing. Considering all these points, what do you think we had better do; plant an orchard; commence a market garden; or farm in the State near or far from the city, or emigrate South or West?"

This is certainly a very sensible and well-written letter. But I can give no advice in regard to where the father had better settle. It is too serious a question to be decided without a knowledge of all the facts. So far as the young man is concerned, I think he would do well to stay where he is, and continue to raise garden vegetables. He seems to have a taste for this. I would continue to cultivate the quarter of an acre already occupied. Such a garden, in crops this year, and well cultivated and manured, will afford more profit next year than several acres of land never before used for a garden. I would advise him, above all things, not to get too much land. Make what he has as rich and clean and mellow as possible. Get the crops in early, and spare no pains to make them grow rapidly. Nearly all our choicest garden vegetables are the product of long-continued, high culture, and need the richest of soil and the most careful, artificial treatment. This idea must be constantly before the mind. Mr. Lawes found that land which would produce an average of 16 bushels of wheat every year for over twenty-five years, without manure, and still continues to bear good wheat without any apparent diminution, would not produce turnips, after the second crop, much larger than radishes. It was found, too, that turnips to produce good bulbs, require a much more liberal supply of available phosphates and carbonaceous matter in the soil than wheat—notwithstanding the fact that the grain of wheat contains a much larger percentage of phosphates in its ash than the ash of turnips. Many explanations have been offered for this well-established fact. Perhaps the true one, at least in part, may be that the grain of wheat is a natural product of the plant, while the bulbs of turnips are an artificial product—the result of high culture and years of selection. Naturally, the turnip runs to seed the first year, like wheat, but we have changed its character and must supply food adapted to its artificial requirements. And it is so with cabbages, cauliflowers, beets, carrots, parsnips, lettuce, onions, etc. We can use with great advantage an amount of manure for these crops that would utterly ruin wheat and barley. Of all men, therefore, the market gardener requires rich land and clean culture. If this young man acts on this idea, confines himself at first to a small plot of land, makes no doubtful experiments, is not in haste to be rich, but confines himself to such crops as are in steady demand, and that afford sure but moderate profits, and pursues the business with steady industry, he can hardly fail of success, and very likely will get rich.

For my part I am constitutionally indisposed to move. I have no faith in emigrating, unless there is some decided cause for it. Success or failure depends far more on the man than on the locality. If I could be more energetic and less given to procrastination in Texas than in New York, I am not sure but I would "pull up stakes" and move out there at once. The chief battle of life is with one's self. It must be fought day by day, and hour by hour, wherever our lot is cast, and I do not need to move one inch from this farm for opportunities of learning patience under provocation, and faith under discouragement.

A few months ago one of my neighbors brought a young Englishman to see me. He was a farmer's son, strong, healthy, and well educated; an engineer by profession. He had been looking for employment ever since he came to the country, but could not find a vacancy. What should he do? My neighbor asked me if I did not know of some one in the city who wanted a coachman? If he could get such a place as that he thought he would be in the way of seeing people and might find something better. He was out of money, and pretty much out of clothes, and wanted to be doing something. He thought if he should go to Canada he might find work. Said I, addressing the young man, "You are a farmer's son and must know something of farm work. You want some one to use their influence to get you a place in the city. Here in the country you can get work at the first farm you come to. And it is at any rate, quite as respectable to work on a farm as to drive a carriage, and your acquaintances will be at least equally intelligent and influential, and should any opening occur in your profession you will be quite as likely to hear of it, and much more likely to secure the appointment." He took my advice, and went to work steadily and faithfully on the farm. In less than three months it so happened that some engineering work had to be done, and the engineer in charge could find no one who understood some particular branch of the profession, and was anxiously inquiring for such a man. Our young friend's name was mentioned. He was examined on the subject, found to be just the very man they wanted, and was at once taken from the plow to a desk in the engineer's office with a salary of $85 per month, with a prospect of more by and by. Had he not gone to work he would probably have been still traveling from city to city, "waiting for something to turn up."

There is a general impression that farming requires very hard work. I do not know of any kind of *work* that is easy, but I would like to know where the specially hard work on a farm comes in. Take the corn crop; plowing the sod is sometimes rather hard work, but it lasts only a few days, and frequently, so far as mere strength is required, a boy will plow as well as a man. Harrowing, rolling, and marking are not very back-breaking work. Planting with a machine requires brains rather than muscle, and in planting by hand a boy fifteen years old will sometimes keep up with the men. He may not do as good work, but at any rate it shows that the men are not endangering their health with exhausting labor. And so with cultivating; a boy with a steady horse, provided you do not give him (as too frequently happens) the oldest, heaviest, and poorest cultivator on the farm, will generally keep up with the men.

Hoeing is *very* hard work; so hard that the men sometimes require a little cider to enable them to keep up with the women and boys, working in the same field. Cutting up the crop is also heavy work, but still there are few men who feel ashamed to have a boy keep up with them. Husking is such hard work that it is often left to the women and the boys. The same remarks will apply to the potato crop. Haying and harvesting are such hard work that the men must have higher wages and better fare. Riding on a mowing machine is not so *very* laborious, if it was not for the fact that the knives have to be ground and sharpened occasionally, and nuts screwed up and the bearings oiled. When I rake up hay with a sulky, steel-toothed rake, one of my little children sometimes goes with me on the rake, and apparently enjoys riding up and down the field as much as any of her city cousins would a drive in Central Park. When we had only one-horse tedding machines a man could use them without overtaxing his strength, but now we have *two*-horse tedders and we expect *one* man to drive both horses. Is it not hard work! Cocking, opening, spreading out, turning, and recocking, are not traditionally hard work. Pitching requires some strength, but the work may be greatly lessened and facilitated by the exercise of a little mechanical knowledge and common-sense. Unloading is down-right hard work, but we have good forks that do away with the necessity for it. Mowing away in a close barn is anything but agreeable, but in a commodious barn, with a hay fork, it requires a very short time to stow away a load.

In harvesting grain, binding is hard, and when there are thistles, very disagreeable work, and it is time we got rid of the latter, and had a machine to do the former. Pitching sheaves is comparatively light work. I would much rather pitch than load or unload. But where is the killing labor? Is it in thrashing? With the exception of feeding, if there is any really hard work about thrashing you will generally find that it is assigned to a boy! I had a man leave me because I would not let him have three men to help him on the straw stack. We were thrashing as we drew in from the field, and one man did the pitching. If we had been putting grain, straw, and all in a stack before thrashing, he would have required only a boy to help him. But to stack the straw alone required four men! Such is the force of tradition. Depend upon it, the hard work on a farm is a myth—an idea of the past, and no young man need hesitate about devoting his life to agriculture on account of the great labor and strength required. If he has health, industry, energy, perseverance, a cultivated mind, some mechanical ingenuity, and a good stock of common-sense, with a big heart in his bosom that will never allow him to neglect an animal, let him join the great army of farmers. We need such men, and I cannot see why his chances of success are not as great as they would be if he adopts any other business.

A gentleman asks me to give some account of Mr. Lawes' experiments in feeding sheep. I do not think it is possible to give a satisfactory account of them, without going into details, and this would occupy too much time. Mr. Lawes' original flock of sheep was common Hampshire Downs. He commenced to improve his farm and his sheep at the same time. And it is difficult to improve a flock of sheep without improving the land, or to improve the land without improving the sheep kept on the farm. He selected out his best ewes and put them to the best thorough-bred ram he could hire or buy. The first year I was at Rothamstead, he paid $300 for the use of a ram for the season, and this was done with no reference to selling sheep except to the butcher. That it paid him there can be no doubt. From having quite an ordinary flock of sheep he soon had a flock of several hundred that it would be difficult to beat. It was accomplished by raising good grass and clover, and by the use of thorough-bred rams and liberal feeding.

The first four series of experiments were made on these Hampshire Down sheep, and the object was to ascertain the best foods for *fattening* sheep.

In the first series, there were four pens, with five sheep in each pen. All the sheep were allowed as many sliced Swede turnips as they would eat; and in addition to this, the sheep in Pen 1 had oil-cake; those in Pen 2, oats; those in Pen 3, clover hay, and those in Pen 4, oat straw. The sheep were allowed all the oil-cake, oats, clover hay, and oat straw they could eat. The experiment lasted fourteen weeks (or more accurately, thirteen weeks and six days). At the commencement of the experiment the sheep averaged about 110 lbs. In Pen 1, the sheep ate 6½ lbs. of oil-cake, and 89¼ lbs. of Swedes each per week, and gained 1 lb. 14 oz. Pen 2, 8½ lbs. oats, 82¼ lbs. Swedes, and gained 2 lbs. ½ oz. Pen 3, 8¼ lbs. clover hay, 116 lbs. Swedes, and gained 2 lbs. 3¾ oz. Pen 4, ½ lb. oat-straw, 120¼ lbs. Swedes, and gained 1 lb. 5¾ oz.

The sheep would not eat the oat straw, and the gain in Pen 4 may be taken as showing the feeding value of Swede turnips alone. The most remarkable result, and what, I recollect, surprised all of us very much while the experiments were in progress, was the fact that the sheep did better with clover hay than with oil-cake. If the sheep had had clover hay as well as oil-cake, we should doubtless have had a much more rapid gain.

There is another fact of great practical importance as showing the advantage of inducing animals to eat more food. The difference between Pens 3 and 4, we may assume to be that the sheep in Pen 3 ate 1 lb. of clover hay per day more than Pen 4. And this 1 lb. of extra food gave 14 oz. of extra increase. Or in other words, one ton of clover hay, fed in this way, gave 250 lbs. of mutton! The great secret of profitable feeding is to get the animals to eat all they will, and then induce them to eat a little more.

The second series commenced in June, on a lot of Hampshire Down yearling wethers, that averaged about 120 lbs. each. Pens and numbers, same as before. The sheep in all the pens had all the *clover hay* they would eat, and in addition, Pen 1 had oil-cake; Pen 2, linseed; Pen 3, barley, and Pen 4, malt—1 lb. being allowed to each sheep per day.

Food consumed per head per week.	*Gain per head per week.*
	lbs. oz.
Pen 1, 7 lbs. oil-cake, 22 lbs. 2 oz. clover hay.	1, 15½
Pen 2, 7 lbs. linseed, 20 lbs. clover hay.	1, 11¼
Pen 3, 7 lbs. barley, 20 lbs. 14 oz. clover hay.	1, 14
Pen 4, 6 lbs. 9 oz. malt, 20 lbs. 12 oz. clover hay.	1, 13

The sheep with oil-cake ate the most clover hay and gained the most. Barley seems to be nearly as nutritious as oil-cake. The other sheep did not gain quite as much as those fed with the oil-cake, but they ate less clover hay.

It should be recollected that the experiment was made during the summer months, and that the sheep were confined in pens and had nothing but *dry* food and water. They drank large quantities of water, so much so that a Member of Parliament opposed to the malt tax and who came to see the sheep during the experiment, expecting to find those having malt gaining much faster than those having barley, suggested that the sheep were drinking altogether too much water, and persuaded Mr. Lawes to curtail their allowance. This was done for one or two weeks, but the scales showed that the sheep knew more than the M. P., (though one of the leading farmers of England,) and after that they were again allowed all they would drink.

I believe it would always pay to let sheep have a rack of hay in the field while at pasture, especially in rainy weather when the grass is green. It is an old saying that "sheep like roast meat rather than boiled."

It is worth mentioning, that the remainder of the flock from which the experimental sheep were selected, was turned into a forty-acre field of rich, highly manured clover, and had besides, 1 lb. each of oil-cake per day. The whole flock was weighed again in eleven weeks and had gained on the average over 3¼ lbs. each, per week. One of the sheep gained 44 lbs. in the eleven weeks. There is nothing better to fatten sheep than rich clover pasture, and *a little oil-cake twice a day in addition!*

The next series of experiments was made with turnips alone, grown with different manures. The sheep were ewe lambs, about 9 months old, and weighed about 75 lbs. each. None of the sheep did well. Older sheep would probably have done better, but white turnips alone are not very fattening.

In one pen it took, in round numbers, 13,000 lbs. of turnips to produce 100 lbs. of increase; in another pen, 20,000, and in another pen, 28,000 lbs! and in the other pen the sheep weighed less after the ten weeks of feeding than at the commencement.

The next series was made to ascertain the relative value of barley and malt. It shows pretty conclusively that there is no special advantage in converting barley into malt for fattening sheep. The greatest increase was obtained from barley ground and steeped in water for twenty-four or thirty-six hours before feeding. In this pen, with a pound per day of steeped barley and mangel wurzel, the sheep gained over 2½ lbs. each, per week.

As before said, these experiments were made to ascertain which is the best food for fattening sheep. And the result of the whole is that, provided the sheep have a liberal supply of available carbonaceous and nitrogenous matter, it makes very little difference what name it is known by! Much more depends on the character of the sheep than on the character of the food. We should aim to get well-formed, well-bred sheep, and then feed them liberally with such food as we happen to have. I have little doubt that sheep will fatten as rapidly on good timothy hay and Indian corn as they will on clover hay and oil-cake; *but* the manure from the latter will be worth *as much again* as from the former.

The next experiments were made to ascertain *which breed* of sheep, on the *same food*, would fatten most rapidly, in proportion to the food consumed. The experiments were made on Sussex Downs, Hampshire Downs, cross-bred wethers, cross-bred ewes, Leicesters and Cotswolds, forty sheep in each pen.

The cross-breds were derived from a Leicester ram, on a Sussex Down ewe. All the sheep had clover hay, oil-cake, and Swede turnips. The experiments lasted twenty weeks. The sheep ate and gained as follows:

	Food consumed by each sheep, weekly.				Av'g In. of each sheep weekly.
	Oil-Cake.	*Clover Hay.*	*Swede Turnips*		
	lb oz.	lb oz.	lb oz.		lb oz.
Sussex Downs	6 0½	5 12½	77 12½		2 0¼
Hampshire Downs	7 12¾	7 0	106 3½		2 10¾
Cross-bred wethers	5 14	5 9½	82 14		2 3½
" ewes	5 9½	5 5	78 0		2 2
Leicesters	5 14	5 9½	83 13		2 3½
Cotswolds	8 1	6 14½	113 4		3 2¾

The average weight of wool per head was: Sussex Downs, 5 lbs. 10 oz.; Hampshire Downs, 6 lbs. 4 oz.; Cross-bred wethers, 6 lbs. 7 oz.; Cross-bred ewes, 7 lbs. 3½ oz.; Leicesters, 8 lbs. 2¼ oz.; and Cotswolds, 9 lbs. 4¾ oz.

The Cotswolds not only gave by far the greatest increase, and the heaviest fleeces, but gave the greatest increase and the most wool *in proportion to the food consumed;* and when killed, they gave the heaviest weight of carcass in proportion to live weight—dressing 58 per cent, while the Leicesters dressed less than 54¾ per cent. The Cotswolds have less offal, and eat more food in a given time than any other breed; and *this is the reason* why they gain more rapidly in proportion to the food consumed. They have hardy constitutions, a good appetite, vigorous digestion, a quiet disposition, and little offal.

I can't but believe that great experiments are yet to be made in sheep, as mutton and wool producers. Flesh meat is a very costly article of food, even with the Cotswolds, which furnish meat at a less cost than any other animal, except a well-bred pig, and *it* requires over 15 lbs. of *dry* food to produce a pound of dry

meat. There is too much food used to support the vital functions, and too little to produce meat and wool. We must induce the sheep to eat more food. This cannot be done at once. It must be accomplished by years of breeding, keeping this object steadily in view.

We cannot now go into this matter. But there is one fact connected with Bakewell's improvement in the Leicester sheep that strikingly confirms my idea on this subject. Bakewell was undoubtedly a very skillful breeder, but I imagine he was, after all, somewhat of a quack. He made a great mystery of his operations, as quacks always do. He pretended to be able to put flesh on any part of the sheep desired. This was done by selecting those sheep showing a tendency to development in this direction, and continuing to breed year after year from those having the desired points. But the ground of his success, whether he knew it or not, was in furnishing his builders, the sheep, more bricks and mortar than they required. They were obliged to put the extra bricks somewhere, and when one of the sheep put it in the right spot he selected him for breeding. This ability to select the right sheep has been considered wonderful; but in point of fact, the great skill shown was in providing the sheep with the extra brick and other building material. This was done by liberal feeding. But the one fact about his breeding which interests me most is this: his sheep had little *inside fat*. Why? Fat is stored up in the animal to furnish the means of subsistence during periods of scarcity, just as bees store up honey during the summer for subsistence in winter. But Bakewell's sheep soon found that with them there was no period of scarcity. They had abundance of food every day during their lives, and they soon adapted themselves to this state of existence. There was no necessity for laying by a supply of fat, and so they used their daily food for their daily growth, and having a liberal allowance, they, of course, grew with astonishing rapidity. I take it that this is the secret of Bakewell's wonderful success in sheep breeding.

How often do Cows Drink?

The intimate connection between the amount of water which a cow drinks, and the quantity of milk she gives is so well known that we will not argue it. It is very important that milch

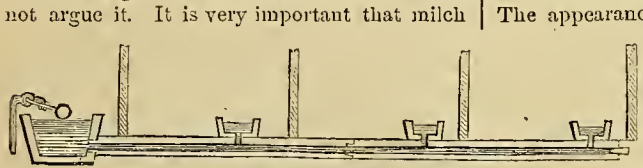


Fig. 1.—CATTLE WATERING APPARATUS.

cows should drink often. They cannot do this without great inconvenience when in the stable, unless by some automatic arrangement water is always before them. We have a very good barn in mind in which a trough about 5 inches wide runs across the front of all the mangers, conducting constantly a stream of fresh water. This is easily arranged if there is an abundance of water. A better plan is to have the water conducted in an iron or wooden pipe from a reservoir trough or barrel through the mangers. Small troughs or basins being set in connection with it at the same level with the reservoir. The accompanying engraving (fig. 1) shows this arrangement. When an animal drinks from one of the small troughs the water in all the small troughs and also in the reservoir trough, is lowered. But a floating-ball valve, seen in the engraving, is made to open and more water flows in. As soon as this reaches a certain level, the floating-ball by the same operation closes the faucet, and thus maintains the

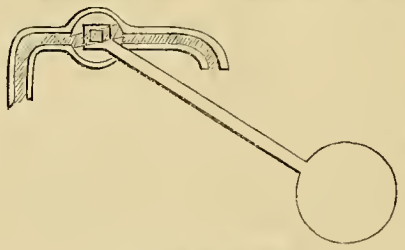


Fig. 2.—BALL FAUCET.

water at its level. The engraving, fig. 1, represents wooden troughs and pipes; iron may be used equally well. Figure 2 is an enlarged view of the floating-ball faucet, showing how the rise of the water will close the cock, and its fall will open it to cause more to flow in.

Warbles—*Œstrus bovis.*

Almost all of us are familiar with the fact that large grubs live during a considerable part of the year in the backs of neat-cattle, coming out

Fig. 1.—OX GAD-FLY—ENLARGED.

in midsummer. These are the larvæ of the Breeze, or Ox Gad-fly, which causes the cattle of some sections much annoyance late in the summer. The insect (fig. 1) is of the size of a large horse-fly, being nearly an inch in length, and is the largest and most beautiful of its kindred. The head is white and downy, the thorax is yellow in front with four black lines in the middle, black and gray behind, and the abdomen is ash-colored with a white ring and yellow hairs. The appearance of one or more of these flies throws a whole herd into a paroxysm of fear. The fly, when about to deposit an egg, lights upon the back of an animal within a few inches of the spine, and at the same instant inflicts a terrible sting, the skin being pierced and the egg deposited at one operation. The egg contains a little grub so near hatching, that it comes out so soon that the egg has never yet been seen in its place of

Fig. 2.—LARVA OF GAD-FLY—ENLARGED.

deposit, so far as we know. Either a fluid is contained in the egg, which, as it breaks, is let out into the cavity, or some poison is injected with the egg, which causes the intense pain the animals seem to feel, and the swellings which follow. On these occasions cattle seek the pools and streams, and will neglect the richest pastures to stand in the water. Oxen stung in the yoke are often hard to control, and a single fly will often stampede an entire herd. The flies select animals whose skins are soft and pliable —such as are called good handlers by the butcher. Hence it is that the presence of "warbles," as the sores on the backs are called, are regarded favorably by the butchers. They make, however, bad spots or holes in the hides. The little maggot thrives on the pus formed in the sore, and causes little or no inconvenience to the animal in which it has its dwelling. As summer approaches, it increases in size, see fig. 2; and a little past midsummer works its way out, and if not picked up by birds, falls to the ground, where it soon assumes the *pupa* state and remains thus for several weeks, when it breaks out through a little lid in its hard shell and commences its work of reproduction.

If farmers would be careful to kill all the warbles in the backs of their stock during the winter or spring, we would soon be entirely rid of them. The grubs may be killed in winter or spring by simple pressure. They may be killed by being pierced with a hot needle, or by injecting minute quantities of some mineral poison into the holes which remain open.

Water—Management of Flowing Water.

There is available water in almost every district, which may either be collected in reservoirs, or taken directly from springs at high levels, and conducted to the premises of individual farmers, or distributed among several. We were lately applied to by a subscriber in the central part of the State of New York, to advise him in regard to bringing water from a spring 100 feet higher than his house, to be "reservoired" at about 25 feet above the house, and thence distributed to garden, stock-yards, barns, dairy, and dwelling.

Several kinds of pipes are available. First, wooden ones, which are objectionable, because liable to leak under such a pressure, and their liability to rot and to become filled with confervoid growth called moss, or frog-spittle. Second, leaden ones, which are objectionable, because many waters act upon lead, dissolving just enough to act as a slow poison upon men and animals. Third, there is the tin-lined lead pipe, or "patent pipe," as it is called. This is free from the objections named to lead pipe, as the tin is not acted upon, and the water does not touch the lead. It is, we suppose, somewhat more liable to bruise and flatten by rough usage than lead pipe of the same strength, but with reasonable care, this is not a serious objection. Both lead and tin-lined pipes are likely to be flattened. Any pipe so flattened cannot be opened again to its normal diameter, but the "goose-knee" must be cut out and the ends united by soldering. Fourth, we have the galvanized, wrought and drawn iron pipe, which is coated inside and out with zinc. This pipe comes in long sections which screw together. The zinc protects the iron from oxydation, but is, to a considerable extent, worn off and acted upon, producing in many cases, insalubrious effects, but not so dangerous as lead. Iron pipe rusts rapidly, and lasts usually but a few years.

Fifth, glazed earthenware pipes are sometimes used, and are especially agreeable as conconductors of water for drinking purposes; for though at first soft water will be hard, it will

grow soft after a while, and remain very pure. These are laid in short sections, the end of one entering an enlargement in the next section, and the joint being closed with cement. Properly laid these pipes stand a pressure of 25 to 40 feet

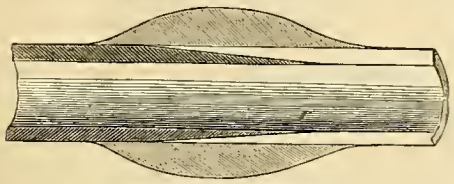


Fig. 1.—WIPED JOINT.

without leaking or bursting. It is necessary to use the glazed pipe, or moss would be liable to accumulate within, which, in time, decays and contaminates the water.

The cost of the lead pipe is usually about 10 or 12 cts. per pound; now it is much cheaper in New York, extra strong inch weighing 4 lbs. 12 oz. per foot; that of the tin pipe cased with lead, 27 cts. per pound, with a discount when considerable amounts are purchased, extra strong inch, weighing 2 lbs. 6 oz. to the foot.

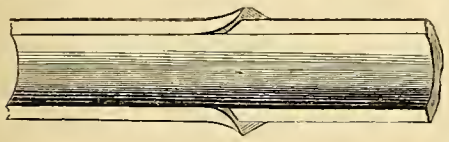


Fig. 2.—CUP JOINT.

That of the galvanized iron pipe varies with the size, inch pipe being about 18 cts. per foot, and the three-quarter-inch pipe half as much. The services of a good plumber, gas-fitter, or machinist, would, of course, be desirable, for either of these pipes, but any blacksmith can manage to lay and make the connections with the iron pipe if he has tools to cut threads and nuts where connections are made. There are two common kinds of joints used for connecting lead pipe, viz.: "wiped joints" and "cup joints." The latter are made as shown in fig. 2. One end is opened forming a cup, the other is rasped to a conical form. The contiguous surfaces are scraped clean, placed in position, and carefully soldered. A good tinner will do the job well. Care being taken not to melt the lead too much so as to weaken the pipe. A wiped joint is shown in fig. 1, and can only be made by a practised plumber, and is much neater, stronger, and better than a cup joint. This kind is preferable for the lead-encased block-tin pipe, for with the cup joint a little ring of lead is almost necessarily exposed to the action of the water. There is, however, a patent brass joint, which should be used with the patent pipe, as this is easily applied and presents only a tin or tinned surface to the water.

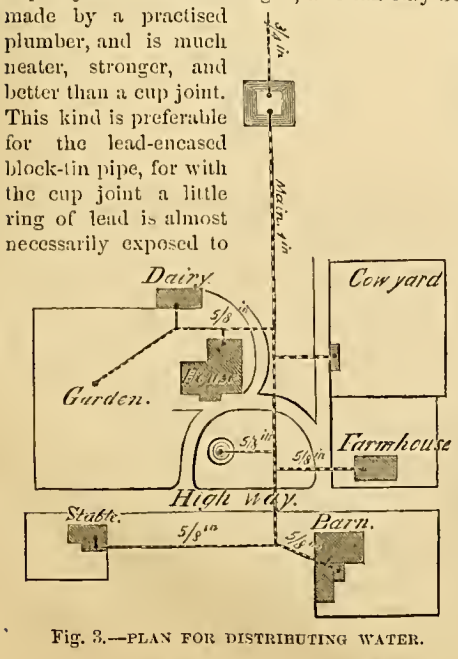


Fig. 3.—PLAN FOR DISTRIBUTING WATER.

We assume, in answering our correspondent, that he can have the services of a blacksmith or of a tinsmith. He says his spring is 56 rods from his house, and that he can establish a reservoir 25 feet above the homestead. He wishes to use the water in his barns, cattle yards, stables, dairy, garden, and house. We think a $^{3}/_{4}$ or $^{5}/_{8}$-inch pipe of either iron or tin-lined lead pipe, weighing $1^{1}/_{4}$ lbs. to the foot, will deliver all the water wanted at the reservoir, there being an unobstructed flow all the time. If there be occasion ever to tap the pipe above the reservoir, it should be larger, of course. Below the reservoir, a larger pipe ought to be employed.

Our friend sent a diagram of his plan, which was to take the water to each yard and building in a separate pipe. This would be of no service, and add greatly to the expense. A main should be laid of inch pipe from the reservoir, as indicated in the diagram, (fig. 3,) to near the range of the lowest point at which the water is to be taken. The branch pipes should go directly from the main to the place of discharge, and be of $^{1}/_{2}$ or $^{5}/_{8}$-inch pipes, if a tolerably free flow of water is desired. Wherever penstocks with faucets occur, and the water is under considerable pressure, it is necessary to provide an air-chamber to act as a spring or cushion, so that when the water is suddenly stopped, it shall not jar and burst the pipe. This air-chamber is simply a piece of pipe about a foot long, near the faucet, turned perpendicularly up and closed at the upper end air-tight, while connection is open below; the air in it acts like a spring. Whether iron, galvanized iron, or the tin-lined lead pipe be used to bring the water to the reservoir, there can, we think, be little question of the superiority of the tin-lined for laying the distributing, main and its branches, as well as the pipes in the interior of a house.

The Rye Crop.—Its Profitableness.

Now that rye has reached the same quotations in the market as wheat, it is likely to be much more cultivated than it has been. The Eastern farmer, with his hard worn lands, where tradition affirms that wheat will not grow, is as well off as the prairie farmer with his virgin soil. If he will use the right rotation and manures, he is better off. For rye is more hardy than wheat, can be grown with less care, and is more uniformly a paying crop. I have the best piece of rye in town, five feet high, heavy, stout stalk, and heavier head. It is as much of a contrast with the thin, stunted crops of some of my neighbors as I desire to see. They sowed late, on exhausted land, used no manure and will get, not over five to eight bushels to the acre. That does not pay. It is a sorry sight to see such a waste of labor. I shall get thirty bushels to the acre on soil naturally no better. It was sowed upon a piece of ground in early potatoes last year. The potatoes came off in July, a sound crop, but not over sixty bushels to the acre, though pretty well manured with fish scrap sown broadcast. They blasted. The piece was plowed, manured with about a half ton of fish scrap, and sown to rye early in September. The grain came up well, and got well rooted before winter set in. Though the winter was open, and very little snow, with much freezing and thawing, it did not winter-kill. It had a good start in the spring, and pushed right along to maturity without any check. A strip a few rods wide at one end, was mulched with sea weed in mid-winter. This mulched portion is indicated by a darker green, and a more luxuriant growth of stalk. Shore farmers cannot do a better thing for their winter grain than to give it a thin coating of sea-weed. The more recent it is from the shore the better. The roots profit by the salt. The old practice of sowing this grain upon exhausted fields without manure is bad for the soil, and still worse for the cultivator. Both parties are badly cheated. With a little fair dealing with the soil, remunerative crops may be taken, and the land be kept constantly improving. Rye does well with a green crop of buckwheat or clover turned in a few weeks previous to sowing, and if no manure is used directly upon the seed some such crop should be turned in. Some turn the sod as early as June, but this is of much less importance than early sowing. If the growth should be too luxuriant late in the fall, it is easily shortened by turning in calves. Rye should always be sown with a drill. It is a great safeguard against winter-killing.

Crimson Clover.—(*Trifolium incarnatum.*)

The clovers, as a class, are very attractive on account of their beautiful flowers and foliage, and from the fact that all classes of herbivorous animals from elephants to rabbits, are so fond of them. They are besides among the most valued agricultural plants for several other reasons on which we often descant. Among them all, perhaps none is more beautiful than the Crimson Clover, the one shown in the accompanying engraving which well represents its form; the blossom is of a bright, rich, crimson color. It grows much like Red Clover,

but is not so leafy nor branching. The plant is an annual if sown in the spring, and will produce a fair crop of hay the first season; but if sown in the autumn, though rather apt to winter-kill, if it lives, it produces fine early pasturage or a good crop of hay. Its growth is so rapid that it interferes seriously with any grain crop with which it might be sown, and hence is usually put by itself. It dies after maturing seed. Several years ago it was introduced and a good deal said in its praise, but its merits are not sufficient to cause it to be extensively retained in cultivation any where in this country, so far as we are aware. We have had several specimens sent us for a name; probably from seed accidentally mixed with that of other clover.

Uses of Salt-Marsh Sod.

A correspondent wants to know if salt-marsh sod is good for evergreens and other plants. As our shore readers have inexhaustible quantities of this sod within easy reach, we will state briefly a few of its manifold uses. There is a rude earthwork in sight of our windows thrown up in the war of 1812, and the well-preserved embankment is a standing monument of the excellence of salt-marsh sod for this kind of work. It is a spongy mass of vegetable fibre, and does not wash like gravel nor surface mold. But this tough sod, which is so durable in an embankment, and never rots when kept dry, becomes very tender and is easily knocked to pieces when put in the compost heap or otherwise treated to make manure. It is one of the best absorbents we have ever used in stables, privies, sties, and barn-yards. It is an admirable article of bedding for horses and cattle, absorbing large quantities of urine. When applied to this purpose, it should be cut in large sods, say a cubic foot in size, and dried in the sun for a few weeks and then removed to a shed or hovel near the barn where it is wanted. It is a good plan to keep a year's stock on hand; and the summer and fall are the best time to cut and dry it. Pack the floor of the stall as closely as possible with a layer of these dry sods, and cover them with the usual litter. The heat of the animals and the urine will decompose them quite rapidly. As soon as they are saturated, say in two or three weeks, throw out the wet sods and put in dry ones. The wet sods may be put into the sty to be worked over by swine, or thrown into the yard to be trodden by the cattle, or, better yet, put into the compost heap with fermenting manure, where they will soon go to pieces. This compost, of which at least seven-eighths are salt-marsh sod, we have used very largely for several years in a fruit and vegetable garden, and in the transplanting of evergreen and deciduous trees. Nothing can be better for evergreens, whether applied at the time of transplanting, or subsequently, as a top-dressing. It keeps the soil light and moist, and the fine fibrous roots penetrate easily in every direction. We have never seen a finer growth of Norway Spruce, White Spruce, Hemlock, and other evergreens, than that made under this treatment. It is also excellent for strawberries and all the small fruits. With salt-marsh sod, close by, we should never go a long distance to dig muck or peat for absorbents. It does not become so quickly available for plant-food, probably; but after a use of muck and peat for a dozen years or more, we decidedly prefer the sod for bedding in the stalls of animals, and regard it as quite equal to peat for compost to be used upon ordinary garden and field crops.

Stocking Large Ponds with Fish.

Massachusetts now claims the control of all ponds within her borders, above the area of forty acres. Until quite recently all ponds larger than ten acres were considered public property. Where the State is liberal it is an advantage to have this control of large ponds vested in the State. It is much easier for a company who wish to make improvements to get a lease from the State than from a dozen or more individual riparian owners. Recently a company of gentlemen at South Framingham, Mass., have leased Sakum Pond for the term of twenty years for the purpose of stocking it and its feeders with various kinds of fish. It is a beautiful sheet of water of ninety acres or more, with gravel beach, and wooded shores, in the immediate vicinity of the village. They have contracted for two hundred adult black bass and fifteen thousand young fry, and are to put in also landlocked salmon. As the pond is forty feet deep, there is little doubt that they will thrive if the bass do not exterminate them. The company we learn have raised a capital of $10,000, and are purposing to do every thing that is needful to make it an attractive place for fishing and for recreation. This is the first instance in that State, we believe, that a large pond has been leased in this way. This is a sensible thing to be done both for the lessor and the lessees. The State gets a large sheet of water stocked with the most valuable kinds of lake fish, and increases its food supply without cost to itself. The association of gentlemen get boating and fishing within a half-hour of their places of business, and a pleasant variety for their tables, at a very small cost. It is so near that they can take their wives and children with them to share their pleasures. This is much more economical than a summer trip to Saratoga or Newport, and more sensible than a month of solitary life in the Adirondacks or Maine woods, to eat salt pork and trout, and to be eaten by gnats and mosquitoes. Their example we think is well worthy of imitation. Pisciculture is attracting a good deal of attention all over the country, and there is every indication of an approaching fever. If it shall lead to the extermination of pickerel, mudpouts, and the coarser kinds of fish, and to the introduction of black bass, trout, and the other Salmonidæ, to the waters that are fitted to them, it will undoubtedly be a great benefit to the public.

Vitality and Propagation of the Scab Mite.

BY A. W. THORNTON, M. R. C. S., NOW OF CALIFORNIA.

SIR,—During the outbreak of scab in sheep, in New South Wales, Australia, in the years 1863–64 and 65, I devoted much time to the study of the disease, and more especially to the habits of the insect, which is generally supposed to be the cause of the disease; and as the quarantine of infected sheep runs, it was a subject of the utmost importance in staying the disease. I was led to take up the question, "How long will the scab insect live if removed from the sheep?" The result of these investigations (so far as I am aware) being new, may not be devoid of interest to your readers.

I procured on the 27th of April 1863 (the autumn in that country), some live *Acari*, and placed them in a glass cell, $^5/_8$ of an inch in diameter, and one line deep, such as is used by microscopists for mounting objects; in this cell, I placed five insects with some fragments of matter from the wool, but no wool; and placed thereon a glass cover and weight. I kept them in a room where there was no fire, and where the sun did not shine. Many severe frosts were experienced; the cell was opened for examination every day, which had the effect of giving fresh air to the insects; and the conditions of my experiments were more unfavorable to life than if the insects had remained in their natural habitat, or even if they had been in a piece of wool, rubbed off against a fence, or tree, where they would have had more food, moisture, and liberty. For two months the insects remained active, and apparently healthy, feeding on the matter in the cell. They then became somewhat lethargic, keeping close to the angles of the cell, and burrowing for a place to deposit the ova. A fortnight after, I discovered some young *Acari*, fully developed and active, and also some eggs which seemed to be dormant; as I could not discover any developement of the embryos in them. At this time I observed two of the original insects were dead, and the ovaries empty of germs; other young insects were developed, and old ones died. By the end of the 15th week, all the old ones had died, and there was a brood of lively, young *Acari*, and ten dormant eggs.

During my investigations I observed a female *Acarus* carrying an egg around the cell, searching for a place to deposit it. This insect I kept in view until it had deposited its burden. I removed this egg to a separate cell, and continued my observations on it for twenty-one days, during which time I could see the embryo being developed within the egg, from day to day; on the twenty-first day the investing membrane of the egg had broken and a perfect insect had crawled forth. I removed some of the progeny of the first lot of insects to some clean wool, and they propagated their species for a period of eighteen months longer; each successive generation becoming smaller, and less active, until they all died.

The following conclusions I have drawn as a result of long-continued investigation:—

Acari will live after being removed from the sheep and wool, for at least three months under unfavorable circumstances in winter, during which time they propagate their species in two ways: one portion being developed into life and activity rapidly, and the other being in the form of ova, which lie dormant for an indefinite period, but in a state to be vivified under favorable conditions of warmth and moisture. The insects having deposited their ova, die; but there is nothing to warrant the supposition that they may not live much longer under favorable conditions. The ova are naturally deposited in the skin under the concretions of matter, and while torpid are not affected by external applications; consequently, it is only the mature insect that is destroyed by dressing (dipping) sheep; and we do not yet know how long the ova may remain dormant and unaffected by the local action of remedies. The most successful treatment in Australia, was to repeat the dressing two or three times, at intervals of a week; one dressing being seldom found to eradicate the disease.

I have also come to the conclusion that the scab insect is not the cause of the disease, but the effect. And this conclusion is borne out among other facts, by a case reported to me by an investigating sheep owner, who introduced a number of the insects into the fleece of a clean, pet sheep, and yet that sheep never became affected, although the rest of his flocks were heavily scabbed; and I am further supported in this view by the fact that if *Acari* will live

two years (which I have proved), when protected from the weather, every wool-shed where diseased sheep had been shorn, would remain a nidus for the renewal of the disease during the next year's shearing; and consequently, it would be impossible to free a sheep farm of the disease when once established.

It may be asked then, how is the disease propagated? To which I answer that experience leads to the view that it is the matter, or secretion from diseased sheep, being rubbed on the healthy sheep, when in close contact, that causes the disease, and the *Acarus*, like the itch insect in man, is bred from dirt,—or more accurately, the dirty and unhealthy condition of scabbed sheep is favorable to the developement and growth of the insect,—and doubtless keeps up an irritation in the skin of the sheep, and thus intensifies the disease; consequently the greatest safeguard to the spread of the disease is proper quarantine regulations. We never find scab in sheep without the presence of the insect; and in Australia, where sheep to the number of over one million were slaughtered, and their carcasses and fleeces burned under the inspection of government officials, a great portion of condemned sheep were not scabbed. I allude to this matter, as I find a popular error existing of calling all skin diseases of sheep, scab, where true scab does not exist at all.

There is in Australia a common disease of sheep, very like scab, and only to be distinguished from it by the use of a magnifying glass; it is caused by the seed of a kind of grass, which penetrating the skin, causes irritation and results similar to scab. There are, however, no *Acari* to be found, while the grass seed, in the early stages, may be found in the skin; in the more advanced stages, however, the grass seed comes away with the suppuration, and the disease can only be distinguished by the absence of *Acari*. This disease is not infectious, although affecting whole flocks, simply because exposed to the same cause, and removal to a more suitable feeding range cures the disease.

Of the cure of scab, it is not my object to treat; but I write to lay before your readers the results of my investigation, in order that some may be induced to take up the question, and by varying the conditions, that we may obtain valuable information which would be a guide for legislative interference should a severe epidemic of scab visit this country, as it did Australia, in the years mentioned.

Left-handed Plows.

The Hon. John M. Millikin, of Ohio, in a private letter to "Walks and Talks" writes: "You must permit me to express my surprise to learn that single line horses and left-handed plows are not in general use with you. A farm horse broken to the single line is worth twenty-five per cent more than one of the like quality and value in other respects, not so trained. As for the right-hand two-horse plows I would not accept them as a gift. There are many unquestioned advantages in left-handed plows.

"1st.—*You can plow more land per day or hour*, because the lead-horse walking in the furrow and controlling the off-horse, the width of the furrow is more uniform and regular.

"2nd.—Youths and boys can *make much better work and do more of it*, because the lead-horse moves straight ahead and veers neither to the right or the left. The boy, also, in consequence of the steady movement of the lead-horse in the furrow is less occupied in watching his team and can give more attention to the holding and management of his plow.

"3d.—For the same reasons an inexperienced plowman can do better work and more of it."

In other words, where horses are trained to drive with a single line and the line is attached to the left-side bit of the left-side horse, left-handed plows are better than right-hand plows. This may be all true. But we suppose it is just as easy to train the right-hand horse to answer the line as the left-hand horse, and if this were the case right-hand plows would be best. It seems to depend entirely upon how the horses are trained. If the off-horse is the "lead-horse" we should have right-hand plows; if the nigh horse is the "lead-horse," then we should have left-hand plows. And this seems to be all there is to it. The whole question turns on whether it is best to have the line in the right hand or in the left. The farmers of the South and South-west, in driving wagons, etc., adopt the English custom of walking or sitting on the left side of the wagon, and, we presume, when they meet another team on the road they keep to the left in passing, and not to the right, as we do in the Eastern States. It may be that theirs is the better plan. But we do not see how the change can be brought about here, unless by an Act of Congress declaring that henceforth "all teams in passing each other on the road shall keep to the left; and the left horse shall be considered and is hereby constituted the 'lead-horse.'" We do not think that this is a favorable time to present this matter to Congress. In this section we have no "lead-horse" and can use left-hand plows or right-hand plows as we see fit. Where the left horse is the "lead-horse" it would seem desirable to have him in the furrow, and in this case left-hand plows should be used.

Grazing Mutton Sheep.

As population and the demand for good mutton increases, we shall pay more attention to grazing sheep. As yet, in many parts of the country, this subject is very imperfectly understood. Any one in the habit of reading the English agricultural papers will be struck with the importance attached to rich grazing land, and the efforts made by underdraining, top-dressing, boning, harrowing, etc., to secure a constant supply of nutritious grass. English travelers who visit us express surprise at the poverty of our pastures, and attribute it to the dryness of our climate. We believe that were as much attention paid to our grass land as is done in England, it would be equally productive.

One of the readiest and most profitable means of enriching our grass lands is to graze them with sheep and feed oil-cake, or peas, beans or bran to the sheep while at pasture. As yet we have done scarcely anything in this direction.

When the country was new, land cheap, and population sparse, it might not have paid to adopt this course; but the time has come in many sections of the country when it can be practised with great advantage, and it is important to ascertain what kind of sheep we should select for the purpose. An English farmer, in a recent number of the London Farmer's Magazine, gives his views on this subject. He has "grazed to a considerable extent the following 'half-breeds.' (1) The produce of the Leicester ram and South-Down ewe; (2) the produce of the Lincoln ram and South-Down ewe; (3) the Cotswold ram and South-Down ewe, and (4) the Oxford-Down ram and the Lincoln ewe, and all from equally good sources." If we may take the South-Down ewes as representing our common class of sheep, his experience will be of much interest to the American farmer. In brief, then, he found that the produce of the Lincoln ram was "too varied," "denoting," he says, "the cross to have been too extreme in affinity." The grazing of them, including the weight of wool produced, was tolerably satisfactory; but "they were too long in coming to maturity, 'too long on the land.'"

The Leicester cross were smaller in frame, more compact, and they arrived at maturity much sooner; but their yield of wool and mutton did not equal the Lincoln cross.

The Oxford-Down ram and the Lincoln ewe cross was from his own breeding ewes. "They were grazed last season along with several hundred other half-breeds, principally from the Cotswold and South-Down cross; but not with equally profitable results, some of them being the last to arrive at like maturity, all, however, being fatted off within the year, as were also the Cotswold half-breeds." The Cotswold cross he considers the most valuable, and as he is evidently a farmer of large experience we will quote what he says on this point:

"The true Cotswold sheep is the largest and best formed sheep of the large breeds that we possess, and has a great propensity to fatten at an early age. He grows rapidly, and produces a good fleece of wool, of rather fine character for a long-wooled breed. It is for the most part of a closer kind than other wools. This, with their other characteristics, their noble carriage, expansive chests, rotund frames, capital rumps, great weight, and handsome looks, admirably fits them to become the sires of this extraordinary class or stock of 'half-breeds.' It is almost out of character to witness one of these gigantic rams performing his duties amongst a flock of beautiful South-Down ewes, but the produce is eminently satisfactory. They grow up quickly and healthily, and arrive at great weights in from twelve to fifteen months. Many thousands of these hoggets are annually fattened off in the eastern counties at twelve months."

He thinks this "one of the best breeds for summer grazing." But it should be understood that they must have either a very rich pasture, or be supplied with "cake and corn." In fact, we regard this as one of their great merits. A flock of sheep to which we can *profitably* feed oil-cake during the grazing season will prove of almost inestimable value. The practice would soon give us the best of pastures and in the end enrich the whole farm.

Realizing an Ideal.

Though the farmer is mainly occupied with material things, there is no field of toil where ideas are more important, or work greater changes than the farm. Every one who has cultivated the same acres for a dozen years or more, can see pretty clearly what his ideal has been. If there have been no improvement in the soil, no trees planted, no barns built, no comforts added to the home, no better style of living, the main idea has been animal existence. He has raised potatoes, corn and wheat, beef, butter and pork, and clothed and fed his family, and possibly sent his children out to shift for themselves with as poor views of life as his own. The soil that has yielded him subsistence is no way blessed by his presence. Its capacity to bless others has probably been greatly diminished, and he bequeaths to his successor pastures doub-

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RETURNING FROM THE HUNT.—Drawn by Wm. M. Cary.—*Engraved for the American Agriculturist.*

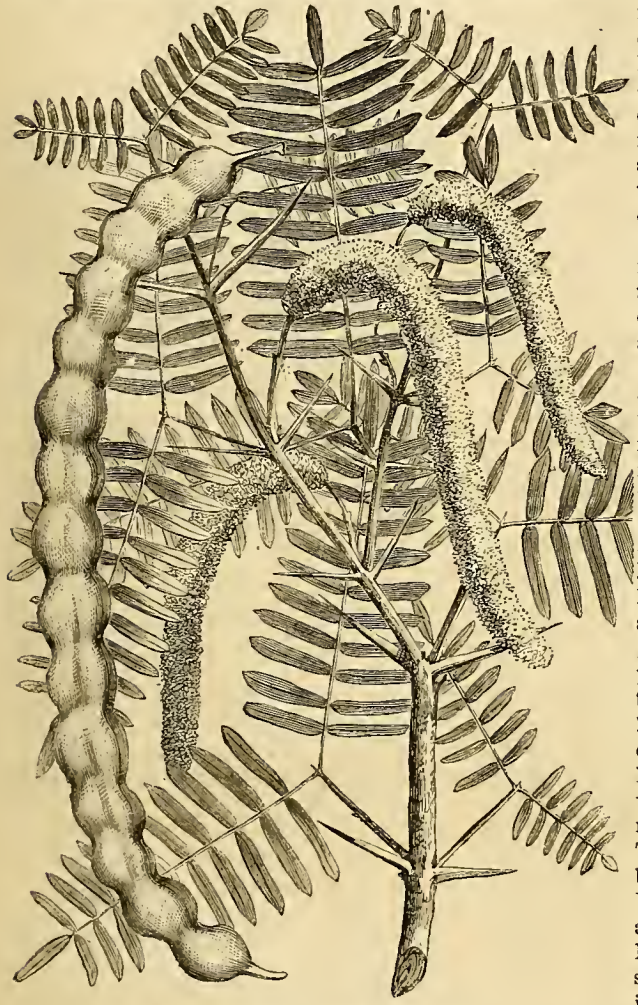
ly cursed by brush and brambles, and meadows seeded with rank growing weeds for the next generation. It is of the highest importance to the man himself, and to society, that he should have something in his mind better than what he sees in his farm, when he takes it in hand. Even if he never fully realize his ideal, he will be striving for it all the while, and will accomplish more for himself and for society. If he get but ten bushels of wheat to the acre he should see thirty just ahead. If he have swales yielding only sour grasses, he should see tiles underneath discharging copious streams at the outlet, and sweet fields of living green above the swelling flood. If he have that vision in his mind it will keep working until it is realized. Every time he mows over that swale he will be thinking of the clover and timothy that might be, instead of the poor stuff he is gathering; of the fat cattle that might be on his ideal fodder, instead of the lean kine that starve and shiver on the bog hay and moss. He will feel a pang akin to the half-fed brutes, and not rest until the tiles are down. If the roads that approach his dwelling are treeless, he should see long rows of elms, maples, or oaks adorning the street. They will be planted by and by. If the wife and mother have hard well-water to wash with, he should see a cistern to catch all the rain from the roof, and a pump to bring it into the room where it will be wanted. There are a multitude of worthy wives suffering discomfort a lifetime for the want of a few practical ideas in the heads of their husbands. Their labors might be made lighter, their whole life brightened if there were conveniences for doing the necessary work of the household. They cost very little time or money, but they do cost a considerable thinking and a little sacrifice of personal ease after the chores are done. To stir up ideas there is nothing better than a good agricultural paper. If the wife is wise she will keep one around when the lamp is lighted.

Returning from the Hunt.

In several drawings that we have published Mr. Cary has given us reminiscences of a far western sojourn. Life upon the frontier presents curious and interesting phases. Here not only do civilization and savage life meet, but they, so to speak, lap over upon and modify one another. The white man picks up much worth knowing from the savage, and the red man is only too apt to adopt all the vices of the white. The result is, that we have at our frontier settlements and far off military posts a people as much unlike the mass of our citizens in character and customs, as are sailors unlike landsmen. In the sketch of "Returning from the Hunt," the artist has represented one of the Penimba half-breeds in his characteristic costume. These Penimbas are a mixture of several Indian tribes, with French, Irish, and other European nationalities, and present a curious combination of the wild and the civilized. These people get a good part of their living by buffalo hunting, going out in parties with small carts built entirely of wood and drawn by a single ox. They encamp in the buffalo region and follow their game upon horseback. When an animal is killed, the meat is cut from the ribs, and the legs disjointed; the remainder of the carcass being left as valueless. This meat is put upon the horse, the saddle strapped down over it, and, mounted thus, the hunter makes his way back to camp. In the present case a cow buffalo has been killed, and the young calf follows the remains of its dead mother. When the buffalo calf has lost its mother, it often helplessly follows the hunter's horse, and in this way is easily captured.

The Mezquit Tree.

Those who have read accounts of travel in Western Texas and the adjacent regions, have noticed the frequent mention made of the Mezquit. In many parts of the country it is the prevailing tree, and, without which, these regions could not be traversed with any comfort; as it is often the only resource for both fuel and forage. The tree grows some 30 feet high, and sometimes, where it has a chance to develop, forms a regular spreading head, and resembles at a distance a large apple tree in its outline. More generally, probably from the attacks of insects and the injuries received from the Mistletoe, the tree is irregular in its form. Upon a closer inspection the foliage reminds one of the Honey-Locust, and the presence of strong spines, a pair at the base of each leaf, increases the resemblance. The shape of the leaflets varies considerably, as does their shade of green. The engraving gives the leaves, flowers, and fruit. The flowers are very minute and clustered in small, greenish-yellow spikes. The fruit is a bean, six inches or more in length, straight or somewhat curved. This pod at a certain stage of ripeness, is pulpy. The pulp is very sugary and often of pleasant flavor. At full maturity the pulp becomes dry and spongy, and still retains its saccharine character. The pods form a most acceptable food for horses and cattle, and are found of great service by travelers. The Indians and the poorer Mexicans make use of them to form a kind of *pinole*, a meal obtained by pounding and sifting the pods; this, though sweet, is accompanied by a taste which is nauseous to the civilized palate. The tree exudes a gum, which, in its qualities, is very much like Gum Arabic. It is used as a substitute for that gum by the Mexicans. The sapwood of the Mezquit is yellowish, and the heartwood of a reddish-brown color, as dark as black walnut. It is very hard, and in durability seems to be equal to the wood of the locust. For fuel, nothing can exceed it in excellence; and a bed of live Mezquit coals makes in intensity of heat a near approach to anthracite. Upon the plains, where frequent fires sweep over them, the Mezquit appears only as a shrub a few feet in hight, and an inexperienced person would be in a straight for fuel. The old traveler, however, regards the appearance of a Mezquit bush, however small, as a sign that a good fire is in prospect; and by the use of a grub hoe he soon unearths roots as large as his leg, which make the most perfect fuel. The Mezquit has been proposed, in Utah, we think, as a hedge plant. It certainly possesses many qualities which adapt it to that use, as any one who has ever had the misfortune to lose himself in a thicket of it can testify. Experiments are needed to ascertain how far north it will prove hardy. It will probably be found, as is the case with many other trees, to endure the winters much farther north than where it grows naturally. The Canadian River is the northernmost locality that we have seen mentioned for it. The subject is one worthy the attention of those who live in the South-west, and we shall be glad to hear of the result of any experiments that have been made in this direction. The tree is related to the Honey-Locust, though it belongs in a different suborder. Its systematic name is *Prosopis glandulosa*.



MEZQUIT TREE.—(*Prosopis glandulosa.*)

Bowman's Root, or Indian Physic.

In a large collection of herbaceous perennials, there was nothing which attracted more attention in June than a native plant which has received the rather inelegant name of Bowman's Root or Indian Physic. Its botanical name is *Gillenia trifoliata;* and we think that those who dislike botanical names will prefer to call this plant Gillenia, rather than by either of the English names, which have a strong flavor of the shop. The plant is closely related to the Spiræas, and in its foliage resembles some of them. The stems are two to three feet high, several from a root, of a pleasing reddish color, and clothed with neat, dark-green foliage. The flowers form a large, loose cluster, one of which, much reduced in size, is given in the engraving. The buds are rose-colored, but the flowers are white, with sometimes a tinge of rose color. The appearance of a plant when in flower is extremely pleasing: the colors of foliage and stem produce a fine effect, and the quaint-looking flowers are supported by such slender stalks that at a little distance they appear as if floating in the air. The root is a powerful emetic, and having been more or less used as such, it has received the names we have already given as well as several others having reference to its medicinal properties. The Gillenia is found from New York southward, in woods and on the borders of rivulets. It flourishes better in the soil of the border than we have ever seen it when growing wild, as not having to struggle with other plants, it has a chance to develop its form. It is readily multiplied by dividing the roots, or by seeds, which should be sown as soon as ripe, as they will otherwise be long in germinating.

BOWMAN'S ROOT, OR INDIAN PHYSIC.—(*Gillenia trifoliata.*)

CURRANTS.—A well-known fruit grower once said to us, as we were discussing varieties of currants: "I can take the old Red Dutch, and treating it in my way, get $200 an acre more from it than from any other variety." This seemed a pretty large statement, but upon seeing the result of severe pruning and liberal manuring upon some of our own bushes of Red Dutch, we think it was not much out of the way. This variety is superior to all others in flavor, and with proper treatment will rival them in size. Our friends' "way" is judicious pruning, liberal manuring, and thorough cultivation. With these, this old sort, as well as the White, will attain a development and excellence in marked contrast with the fruit as ordinarily seen.

Cranberry Culture.

"Cranberry Culture, by Joseph J. White, a Practical Grower," is the modest title of a work recently published by Orange Judd & Company. Cranberry culture has developed wonderfully since the time Mr. Eastwood wrote the only considerable treatise we had upon the subject.

Fig. 1.—BILL HOOK.

The present work not only gives instructions drawn from the author's own experience, but presents the practice of the most advanced practical growers. Some who have written upon the subject have left it to be inferred that cranberries would grow almost anywhere. The author states distinctly, and various other growers sustain him—that successful culture can only be carried on where certain conditions are present. Where these are wanting, vines may grow, but their culture will not be profitable. The

Fig. 2.—TURFING A SWAMP.

requisites are muck, sand, and ability to drain the meadow for a foot below the surface, and to flow it at will. Natural bogs are sometimes found which may be improved at a moderate outlay, but the great majority of plantations are made by clearing the swamps and setting out the plants. In many swampy places there are 5 or 6 inches of muck, underlaid by sand, which may be prepared for cranberries by simply plowing under the muck and turning up a layer of sand. In swamps where the muck is deep, sand

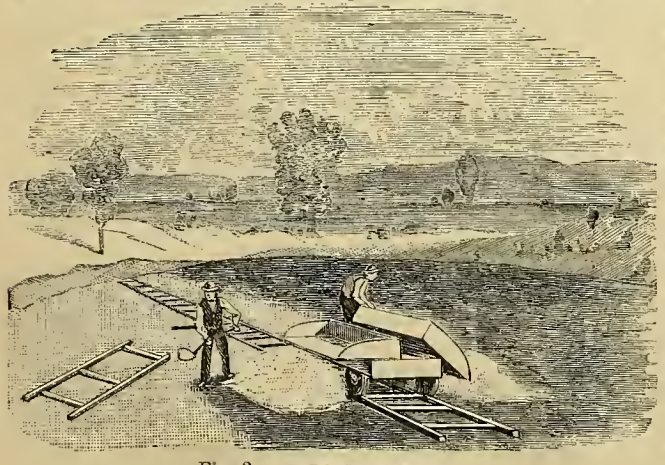


Fig. 3.—SANDING A MEADOW.

must be at hand to spread upon the surface. Mr. White gives full directions for preparing the different localities that are naturally available. As summer is the most favorable time for preparing a swamp, we give an outline of Mr. White's directions. The first step is to open a ditch to the depth of 2 feet below the surface of the muck. The bushes are cut down by means of a bill-hook like that shown in figure 1, collected in heaps, and when the leaves have dried, burned. Turfing, or "scalping," is next in order; the whole grassy and weedy surface is to be removed. The turf is cut into strips a foot wide, by the use of a cleaver made for the purpose, and then removed in pieces by means of a turfing-hoe, as shown in figure 2. The pieces of turf are used to make a fence or wall around the plantation. The cost of turfing is $40 per acre, and the hauling off and building the fence costs about as much more. Any stumps which remain are removed. A sufficient number of ditches, to drain all parts of the meadow a foot or 18 inches, are cut, and the meadow is ready for sanding. Sand without any admixture of clay or loam, is spread regularly over the surface of the meadow to the depth of 2 to 6 inches, according to the depth and character of the muck. The sand may be carried on in wheelbarrows running upon plank, or a portable railroad may be used, like that shown in figure 3. Planting is done in the spring, and the different methods of setting the plants are fully discussed and illustrated, as are the after treatment of the meadows, gathering the crop, overcoming insects—in short, all that one needs to know about cranberry culture seems to be contained in this work. As we are frequently asked about flooding, we may state that it is done after vegetation has ceased in autumn, for the protection of the plants during winter, the water being kept on until spring has fairly opened. The meadows are again flooded just before the blossoms open, to destroy the vine-worm. At this time the water is kept on only 24 hours.

Camellias in Window Culture.

Of all the green-house plants grown in window culture, there is none with which the amateur is so generally unsuccessful as the Camellia. All goes well until the buds are beginning to swell, and then they begin to blast and drop, carrying with them the anticipations of the grower. The trouble is a too hot and dry atmosphere. A correspondent, whose abundant bloom last winter we had the pleasure of seeing, writes:

"I have had capital success with Camellias this winter. These are generally failures in the dwelling-house, as the buds drop just about the time they should open. The window of an upper hall was devoted to camellias and a few other plants; twice during the winter the earth in the pots froze, and twice they were removed to a warm room to prevent freezing. In February the buds began to show signs of opening, and such plants as were ready to flower were taken to the dining-room, where they rapidly came into full bloom. One later than the rest has over a dozen flowers on it now (in April). Those who have no green-houses can have Camellias if they will only take a little trouble; and so magnificent a flower is worth a great deal of trouble. Nice, moderate-sized plants can be bought at from $1 to $3, and upwards. Keep the plants out of doors in a shaded place all summer, taking care that they do not get too dry and that no insects eat the leaves. I don't know what one it was, but some "bug" disfigured the leaves of one of my plants. When frosty nights come, remove the plants to the house, to a room without any fire, and keep the window open whenever it is not too cold. Water as needed, and during the winter, wash the leaves with a sponge or soft cloth every week or two. A moderate freezing will not hurt the plants, unless the buds are too far advanced; but it is easy to prevent it altogether by removal to a slightly warmer place during very cold nights. As soon as the buds swell enough to show the color of the petals, the plants may be removed to a sitting-room where their flowers can be enjoyed. Soon after the flowers have fallen, the camellia makes its wood growth. At this time it may be repotted, giving it fresh soil, in the same pot, if a cramped condition of the roots does not show that a larger one is needed. Fresh soil, such as decomposed sods, is as good as any of the mixtures of peat, sand, and other things recommended by the books. Prune into shape, if necessary, and the plant will push its new shoots and grow rapidly. During the time it is growing, give it plenty of water and all the light possible. Set the plants in the open air as soon as frosty nights are over. The treatment is simple enough, and the success most gratifying."

The Twelve-Spotted Squash-Beetle.

Squashes, melons, cucumbers, and in fact, the whole Gourd Family, have a hard time of it in the way of insect attacks. The little "flea" attacks them while in the seed-leaf, then comes the striped-bug, and after these, the disgusting squash-bug; all of these feed upon the leaves, unless the borer comes along, and by going to the root of the matter, destroys the vine outright. To this list we have to add the Twelve-spotted Beetle—*Diabrotica 12-punctata*. We first became acquainted with this pest some ten years ago, in a garden in Michigan. We had, at that time, never heard of it at the East, nor is it mentioned in Harris' Insects. Now it is disastrously abundant in the vicinity of New York, and we have heard more of it this year than in previous ones. The beetle presents a general appearance to the "Lady-birds," or Coccinellas, but it is of a dark yellow color, with twelve roundish black spots upon its wing cases. The engraving shows the insect of about twice its real size. It is closely related to the striped-bug, and a great many times more mischievous; while the plants will soon get strong enough to not mind the striped-bug, this one will attack them when in full vigor, and wherever it goes it makes as clean work as if fire had been among the leaves. This insect is said to be very destructive to the flowers of Dahlias and Asters. We find but little account of its habits in the Entomological works, but know that, excepting the borer, it is the worst enemy that the grower of melons, etc., has to contend with. We know of no remedy save hand-picking. By going over the vines

early in the morning, they are easily captured, but if left until the sun is warm, they take to flight as soon as one approaches. We have found clusters of yellow eggs upon the under surface of the leaves, which we suppose to belong to this insect, at any rate, we thought it would be safe to crush them on suspicion.

The Field Culture of Sage.

BY PETER HENDERSON.

I regret to have to differ with Mr. Gregory, of Marblehead, Mass., on the Culture of Sage, as described in his article in May last; but believing that in our system of culture there is a greater saving of labor, besides being productive of larger crops than the system he recommends, I lay it before your readers. Instead of sowing the seed where the crop is to grow, as Mr. Gregory advises, we sow thickly in beds just as we sow seeds of celery, cabbage, or any other plant that requires transplanting. The space required for the seed is small, compared with the area the crop occupies in the field; and we are careful to prepare the bed for its reception in the best manner, by thorough plowing, harrowing, and raking, until we get a level and even surface on which to sow. After sowing, the beds are deeply but evenly raked, so that the seed is covered an inch or so; we then either roll the beds, or pat down with the back of a spade. The time of sowing the seed with us is about the last week of April or first week of May. I am thus particular in detailing the way of starting the seed, as, unless plump and fresh, it does not germinate freely. The seed is sown about as thickly as we sow cabbage seeds, having them about half an inch apart; of course it is not practicable to do this exactly, but we try to come as near to it as we can. After the plants are half an inch high, the beds are gone over every ten or twelve days, and thoroughly cleared of weeds. By July the Sage will be 3 or 4 inches high, and we then transplant it as a *second crop* on ground that has been previously manured at the rate of 50 tons to the acre, and from which has already been sold our spring crops of Beets, Radishes, Onions, Cabbages, etc. No further manuring is necessary for the Sage crop; all that is necessary is to again break up the ground well by plowing and harrowing.—The Sage is then set out, in rows one foot apart, and 8 or 9 inches between the plants. Now it is in thus transplanting, that I claim that our system saves labor, saves land, and saves manure; for if the seed is sown where it is to grow, as Mr. Gregory does it, every man who has ever grown the crop, knows that it must entail an immense amount of labor to keep the seedlings from getting choked by weeds; for Sage seed is not only slow to germinate, but far slower in growth than most weeds, and must fight a very unequal battle with these sturdy enemies of the gardener for at least two months of the summer; or, until such time as it can cover up the ground and crowd the weeds down, which would not usually be the case before August. But when, as in our case, it is transplanted, we have newly turned up soil to plant in, and the plants are set wide enough apart to allow our small steel rakes to pass between, so that comparatively little labor is needed to keep the crop clean; nothing compared to what it would be were the seeds sown so that the crop would be made without transplanting.

Mr. Gregory may claim that our labor in transplanting is equal to what it would be to clean the seed rows. An acre contains about 50,000 plants, and costs us now about $10 to plant,—say $1.50 a day for men and 50 cts. for boys. An experienced planter, with a boy to drop the plants on the line, will plant 10,000 per day, or about 1,000 plants per hour; this is the average, though I have hands who would plant 1,500 plants per hour. Now unless Mr. Gregory has some way of keeping weeds from growing that we have yet to learn, I can hardly think that it would take less than $50 to keep an acre of his Sage crop (when sown in seed rows,) clean for the six weeks that must intervene before ours is planted out at all, to say nothing of his ground practically lying idle, while ours has been bearing a spring crop. We claim also that this transplanting is better fitted to give a leafy growth and less of stem, than if the plants had not been disturbed; as the temporary check the plant receives tends to make it bush out. Another "kink" in our practice, and a very important one, which Mr. Gregory does not seem to be aware of, and one with which we not only improve our crop in quality, but add double to its weight, is cutting out every alternate row as soon as the ground is covered by the crop. Sown in May, transplanted in July, and set out one foot apart, by the middle of September the ground will be covered entirely, looking like a clover field; allow this mass to grow for another month as it is, and you would not increase the weight of leaves; the plants would grow taller, keeping the green and marketable leaves on the top, but only yellow and withered ones and plenty of woody stems below. But by cutting out every alternate row, the remaining rows are allowed light and air, and in three or four weeks will have spread so as again to cover up the entire surface, *from which half the crop has already been gathered.* We treat Thyme in all respects the same as Sage; and I have seen both these herbs on rich soil not only meet when left 2 feet apart, but when again every other row at 2 feet apart was cut out, almost meet at 4 feet apart.

By this method of cutting out every other row, fully a double crop is taken, and of a quality superior to what it would be were it allowed to grow without being thus thinned out. About 18 years ago I was lucky enough to discover the importance of this plan of doubling our crops of herbs; and as I had not, in those days, began to tell "what I know about gardening," I kept my own counsel for some years before my neighbors discovered the plan.

Nearly all our herbs here are sold in the green state, tied two bunches together, so that they can be hung up in the stores of the butchers and grocers who retail them. One plant usually makes a bunch and a half; the average price is $1 per 100 bunches, and assuming 75,000 bunches to an acre, we thus have $750 gross receipts, which is a low average for highly cultivated grounds. I am often asked, by correspondents at a distance, in relation to the best way of selling herbs in New York City. I will here say, that there is no certain sale that I know of, unless they are in the green state. The season for selling is October, November, and December; and if shipped in open crates, so arranged by divisions of slats, that not more than 8 or 9 inches of a layer would be together, they could be shipped at that cool season to distances requiring fifty or sixty hours in the transit.

ACHYRANTHES LINDENII.—In April last we figured a new bedding plant, *Achyranthes Lindenii.* A trial of it in the open ground proves it to be a most valuable novelty. Its very dark, blackish-purple foliage is unlike that of any other with which we are acquainted. It stands the sun perfectly, and grows well. The figure referred to was taken from a weak green-house specimen, and gives no idea of the erect and robust habit of the plant when grown out doors.

Sulphur for Mildew.

The efficacy of sulphur in destroying and preventing mildew, is now well known, and it is the chief reliance of the vine-grower, whether he cultivates under glass or in the open air. Where sulphuring is systematically followed, it is applied at least three times: just before the blossoming of the vines, after the fruit has set, and when it begins to color; and besides these stated periods it is applied whenever the appearance of mildew indicates that it is necessary. The mode of application, by La Vergne's bellows, we have given in a former volume. The bellows may now be obtained at the implement and seed-stores. The character of the sulphur is of importance, as much of that found in commerce is liable to contain acid, and be injurious to the foliage. An old sulphur refiner writes us, that in refining, much of the sulphur becomes so contaminated with acid, that the India-rubber manufacturers, who use sulphur largely, reject it, and that this acid sulphur finds its way into the market through the wholesale druggists. Sulphur is refined by converting it into vapor by heating, and then condensing the vapors. When the cooling of the sulphur vapor is properly managed, it condenses in the form of the fine powder known as the flowers of sulphur. This process is called subliming. The melting point of sulphur is 258°, and the point at which it takes fire is 302°. If in the process of refining, the sulphur takes fire, sulphurous acid is produced—the fumes which are so disagreeable when sulphur is burned. Sulphur contaminated by acid may be detected by the taste, but a more delicate test is litmus paper. This is paper stained with a blue dye, which turns red when it is touched by acids; it is kept by the druggists. The sulphur to be tested is mixed with a little water and the paper wetted with the liquid. If the least trace of acid be present, it will be indicated by the change in color of the paper. Sometimes sulphur is not sublimed as above described, but the crude lumps are ground to powder in a mill. Sulphur thus prepared is free from acid. The acid sulphur is no doubt injurious to vegetation, and when that free from contamination cannot be procured, it may be purified by washing. The sulphur is placed in a convenient vessel, water poured on, and thoroughly stirred; when the sulphur has settled, the water is poured off. This process is to be repeated with fresh portions of water until the washings, tested with litmus paper, no longer show the presence of acid. The sulphur, being drained, is dried, and, if lumpy, sifted.

A Native Crinum.—(*Crinum Americanum.*)

The exotic species of Crinum are well-known, showy ornaments of hot-houses, and we have one, a native of Florida, which, if not so brilliantly colored as the others, is a very pretty and interesting plant. This spring we received from Mr. C. L. Allen, of Brooklyn, a few bulbs of this Crinum, which allowed us to see it in flower. The flowers are from 6 to 8 inches long, and borne from two to four together at the end of a stalk, which is a foot or more high; they are white, delicate in texture, and fragrant. The

engraving gives a representation of the plant, reduced, of course, in size. This Crinum is a native of the river swamps of Florida, and it will probably be necessary to take up the bulbs at the approach of winter. We shall be very glad if Mr. Allen succeeds in adding this to our list of popular bulbs; aside from the fact that it is a native plant—which we are always pleased to see brought into cultivation—it has merits of its own which will commend it to those who love delicate and modest flowers.

THE AMERICAN CRINUM.

Notes on Strawberries.

In conversation with an experienced strawberry amateur a short time ago, he remarked that we had made no progress in strawberries in ten years—indeed, that our present varieties were not so good as those that were popular ten years ago. Our friend was nearly right; we have allowed many excellent varieties to fall into neglect, and instead, accepted fruit that was either of large size or very productive. The ease with which the Wilson can be raised has caused fruit which required careful cultivation to be discarded; and the enormous size of the Seth Boyden has made us forget the flavor of such varieties as Hovey's Seedling and Hooker. Then again the introduction of such musky varieties as the Triomphe de Gand, which has but little strawberry taste about it, has created a false standard of flavor. We would not be understood as condemning large berries, but size cannot compensate for lack of flavor. The grower for market needs a productive fruit, one that is sufficiently firm to carry well, and of good color and size. The amateur who grows for his own table will be content with fewer berries of a high flavor, and the ability to bear transportation is of no consequence to him. We append a few notes on some of the newer varieties we have grown or have tested this season.

Nicanor.—We fruited this variety on young plants put out last fall, and have seen it on two-year-old plants under the best treatment, and wonder why so little has been said about it. It is vigorous, hardy, and in productiveness it is remarkable, if not unequalled. The berry, though not of the largest, is of good size, a bright scarlet, and of excellent quality. Our illustration, (fig. 1,) is from only a medium-sized berry. Should this variety, in other parts of the country do as well as in the instances referred to, it must become a popular fruit.

Fig. 3.—LATE PROLIFIC.

Seth Boyden.—This was first exhibited as Boyden's No. 30. Three years ago we described and figured it as "Seth Boyden," and since the death of the originator, this name has

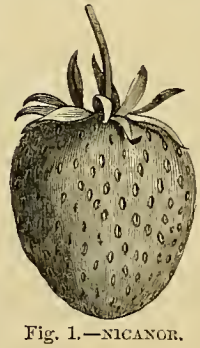


Fig. 1.—NICANOR.

Fig. 2.—RUBIS.

been generally adopted. It stands at the head of the large berries, being a good bearer, of a fine shape, and little disposed to cockscomb, and its conspicuous polished neck makes it showy and attractive. It unfortunately lacks flavor and is rather soft, but it is the best large berry yet introduced into general cultivation.

Colfax.—This variety was heralded a year or two ago, as something remarkable. Dr. Hexamer recently exhibited it as the "poorest strawberry ever grown," a statement that both its appearance and taste confirmed.

Late Prolific.—E. W. Durand, Irvington, N. J. This variety took the prize at B. K. Bliss & Sons' Exhibition, as the best variety not before exhibited. It is a cross between Haquin and a seedling of Mr. Durand's, which was itself a cross between Green Prolific and Triomphe de Gand. Hermaphrodite. The foliage is very vigorous, of a dark green, and endures the sun. The fruit of the largest size; obtusely conical, and not inclined to cockscomb. Seeds in medium depressions; surface brilliant, bright crimson; flesh crimson with a few white streaks, very juicy, with a rich, sprightly flavor. On Mr. Durand's grounds this is certainly a very promising berry, but Mr. D. wisely declines to disseminate it until he is thoroughly satisfied that it retains its good qualities. (Fig. 3.)

Rubis.—Mr. Louis Ritz, of San Souci Fruit Farm, Plainville, Ohio, has a remarkable collection of novelties, especially of foreign varieties. He sent us a number of varieties for trial, and though small plants, some of them fruited. One of them, Rubis, pleased us so much that we have figured it, (fig. 2,) though being the product of a plant set out this spring, it cannot do justice in size. This variety originated with Dr. Nicaise, in 1868. The berry is bright scarlet, and very glossy; seeds but little imbedded; flesh rosy-white, solid, juicy sweet, and of excellent flavor. It is not safe to commend a berry with so slight an experience with it, but it is a variety of which we have strong hopes.

Her Majesty is another new sort from Mr. Ritz. The few berries we had were large, of a fine carmine color, and possessing excellent characters, being fine, sweet, and of delicious flavor.

Mexican Everbearing. It will be expected that we shall say something of this bone of contention. We have it growing, and if it is in any important character different from, or better than, the Monthly Alpine, we are unable to see it. Mr. Meehan finds a difference in the young leaves, but as we do not grow the plant for leaves, that has no practical bearing. There are some who fancy Alpine strawberries, and these will be pleased with the Mexican, Autumn Galande, or a half-dozen others, the chief difference in which consists in the name. A pot each of the Mexican and Alpine was exhibited at Bliss & Sons' show, without labels. There were many persons present who are practical strawberry growers, and none of them could see in what particular the plants differed.

Black Defiance.—(Fig. 4.) Another seedling by Mr. Durand, which received the premium at the N. J. State Fair in 1868. It was exhibited at B. K. Bliss & Sons' show, where it attracted much attention by its large size and very dark rich color. This year it has not proved as

Fig. 4.—BLACK DEFIANCE.

abundant a bearer as heretofore. Its richness of color and flavor will commend it to the amateur.

THE HOUSEHOLD.

☞ *(For other Household Items, see "Basket" pages.)*

Bottling and Corking.

Among household operations that of bottling, including the most important part, corking, is usually carelessly done. With many liquids their preservation depends upon the complete exclusion of the air. Good corks are essential, and those should be selected which have the fewest holes or imperfections in them. The compressibility and elasticity of cork are remarkable; and these qualities, which especially adapt it to its use are qualities which no substitute possesses. In thorough corking, a cork much larger than the neck of the bottle is used, and is driven in with considerable force. A bottle of champagne is a remarkable example of skillful corking. In this the cork is about twice the diameter of the mouth of the bottle, and is compressed and forced in by a powerful machine. In household practice, nothing so complete as this is required. We have recently seen in the House-furnishing establishment of J.

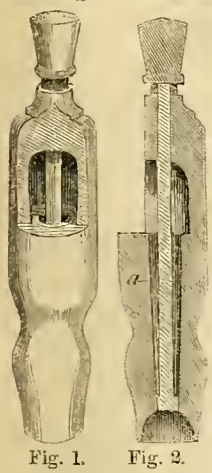


Fig. 1.

Fig. 2.

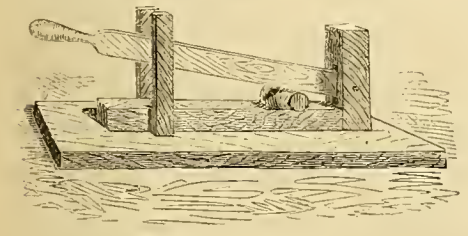


Fig. 3.—CORK PRESS.

H. Baldwin, a German contrivance for compressing the corks in bottling. Its structure and operation will be understood by the inspection of fig. 1, and the section, fig. 2. It is essentially a conical tube with a plunger. The apparatus is set upon the neck of a bottle, the plunger lifted, and a cork introduced at the opening shown in the engraving. —The cork drops into the cavity *a*, figure 2, which, it will be noticed, tapers downwards; it is lined with metal. By striking upon the top of the plunger with a mallet, the cork is driven downwards, and so much compressed in its passage, that it enters the neck of the bottle with ease. Good corks should be procured and soaked in warm water, to render them pliant, and then be pressed and driven in with a wooden driver; a flat piece of heavy wood or a mallet will answer. In filling the bottle it should not be so full that the cork will touch the liquid, as the bottle will be broken in driving the cork. There should be a space of an inch or more between the surface of the liquid and the bottom of the cork; this will prevent breaking. There are cork pressers made of iron, but a simple wooden lever like that shown in figure 3 will answer. If the corks are to be sealed the projecting portion should be cut off even with the neck of the bottle before dipping them in the melted wax. Liquids such as ginger-pop, beer, etc., where there is a pressure from the inside of the bottle, need to have the corks tied down. In this case the projecting portion of the cork is not cut off. There

Fig. 4.—LOOP.

Fig. 5.—TIE.

are several kinds of knots used in tying, one of the easiest of which we give. Form a loop as shown in figure 4, then turn up that part of the string *a*, which crosses the loop, as in fig. 5. This is to be placed over the neck of the bottle, and by pulling the ends may be made to fit beneath the lip, as in fig. 6. The two ends are then tied above the cork. Bottles containing liquids if intended to remain a long time, should be laid upon the side, as this prevents the cork from becoming dry and admitting air.

Fig. 6.—TIE APPLIED.

About Keeping Cool.

BY FAITH ROCHESTER.

Amid the fierce heats of July and August, it seems impossible to "keep cool" always, but with proper care much may be done to make life more tolerable than we usually find it. The whole house should be opened and well aired in the cool, fresh morning, letting in the sunshine for a little while. Everything thrives best with plenty of fresh air and sunshine; but we have to choose between evils in some of the hottest days, and I think we shall prefer shaded rooms that are comfortably cool, to a brighter light and oppressive heat, during the hottest part of the day. Rooms may be kept comparatively cool if they are shaded, beginning early in the day, on the side where the sun's direct rays beat in. If there are no wooden blinds at the windows, thick paper curtains answer very well, and may be drawn down close, if light can be admitted from another side, or they may be raised only while the room is actually occupied. During the busy part of the day our sitting-rooms are often vacant a large part of the time, and they should be guarded from the heat of the kitchen stove. Our comfort depends a good deal upon the "looks" of things. Clean rooms seem warmer in winter and cooler in summer, than untidy ones. The sight of clean muslin or lace curtains refreshes one in summer; and so does the appearance of a fresh muslin or a calico frock, or a "spick-and-span" linen coat and trowsers. A room full of buzzing flies never seems comfortable, but it is not well to keep darkened rooms all summer for the purpose of keeping out flies. Better have netting in the doors and windows, and set fresh fly-traps every day. With clean breezy rooms, netting is hardly *necessary* where mosquitoes are scarce, especially if there are no bad breeding places for flies in drains, compost heaps and out-houses. I don't know much about fly-poisons. We have tried cobalt and fly-paper, but nothing serves us so well as traps, made thus: half fill a tumbler with strong soap suds, and cover it with a thin slice of bread, spread on the under side with molasses; cut a round hole in the middle, smearing its edge with molasses. Set a trap near each window, and knock upon its cover every little while, and down go dozens of victims to a soapy death. Don't let the glass stand long enough to become like the "ointment of the apothecary." Straw matting is more suitable than woolen carpeting for summer. Many prefer it all the year round, with large rugs to lay over it in winter. An instructed taste will prefer clean, bare floors to greasy carpets with untold horrors of dust beneath them. I think Art has not yet done its best for us in the way of floors—at least for dwelling-houses. When it does take hold of the matter, I suspect that *nailed-down* carpets will go out of fashion, to the great advantage of human lungs. It is common in stores and offices, and country school-houses to sprinkle the bare floor frequently with cold water, which has a cooling effect on the temperature. A sheet rung out of cold water and hung in a room has the same effect. I suppose the pitcher of ice-water on the table comforts us not only by its cool suggestions to the imagination—as the reading of Kane's Arctic Explorations makes life endurable to some imaginative people when the mercury touches 100° above zero,—and by its effect upon us as we drink, but it constantly produces a cooling effect upon the atmosphere of the room; as nature seeks to produce an equilibrium of heat.

It is on account of this constant tendency to equalize the temperature of different things in the same neighborhood that we choose fabrics for summer wear which will best conduct away the heat of our bodies. The human body, when healthy, varies little from a temperature of 98°, the world over. The atmosphere is seldom so warm as this, so the body is almost constantly parting with its heat; but the internal fires keep up the supply in proportion as they are fed by our diet, pure air, and exercise. When the atmosphere is almost or quite as warm as our bodies, we are uncomfortable, because we cannot part fast enough with the extra warmth produced, and we seek the aid of rapid currents of air, using fans to create artificial breezes. Linen garments, being good conductors of heat, are the coolest when the atmosphere is not higher than blood-heat, or 98°. But for keeping *out* external heat when working in very hot rooms, or in the hottest days of summer, flannel serves best. For this reason we wrap ice in flannel to keep it from melting. How people do sometimes burden themselves with unnecessary clothing! Are the demands of fashion so very imperative? or are the poor human creatures who go loaded down with broadcloth, or heavy silks and rich shawls, so stupid that they don't know how to be comfortable? Thin lawns and muslins, white or of light tints, are the coolest ladies' fabrics—comfortable alike to wearer and beholder. A fresh calico frock is cooler than one of silk or worsted, and is always in good taste. Close bands at the neck and wrists add to the warmth of a garment. A lace collar, or bit of lace sewed in the neck of a dress, is more comfortable than a linen collar. Dressed in clean, airy garments, and sitting at leisure in rooms from which the glaring sunshine is excluded, with cool lace or muslin curtains at the windows, and with sprays of delicate flowers and trailing vines in vases on table and mantels, with a dewy pitcher of ice-water, or iced-lemonade ready for any thirsty one, and with fans conveniently disposed, a reasonable person ought not to complain of the heat.

But, in the kitchen, and in the hay-field? Our good old friend, the cook-stove, has the aspect of a demon in such weather. If possible, the cooking ought to be turned out of doors with the coming of summer. If the regular occupant of the kitchen, with its reservoir and roasting oven, is too heavy or too precious to be removed to the wood-shed or back "stoop," a cheap second-hand stove could be made to do most of the ordinary work, and a small charcoal furnace would boil the tea-kettle and heat the flat-irons. One summer, our cook-room was a rough shed, with a wall on only one side (the wall of the house) and we never enjoyed the necessary work over a cook-stove so well before nor since. There are few women that would n't like to hear the birds sing while getting breakfast. It is bad enough to have a hot stove in a room where the exercise of house-work is mainly taken; but it is quite too bad if those who have been busy in preparing the dinner, and those who have just come in from the sweltering harvest-field, must sit down to their meal in proximity to a raging fire. Better dine in the parlor if that is the only alternative.

If the poor people who can't get a comfortable breath of air while they eat, attempt to satisfy their hunger with the most heating kinds of food—as fat, starch, and sugar, or their compounds, how can they reasonably pray for comfort? The experience of all observing people corroborates the testimony of Chemistry and Physiology with respect to the effects of different kinds of food in heating or nourishing the body. In animal food the fat contributes little except heat; the lean part being that which builds up the body and gives strength. In the wheat kernel the inner portion which makes the fine, white flour, is largely carbon, in the form of starch; while the muscle-making, strength-producing portion of darker color lies between this and the woody bran, and is nearly all sifted out in the

bolting of the flour, and fed to the cattle. Unbolted wheat flour contains all the elements needed by the body. Fine, white flour, so highly prized by ignorant house-keepers, contributes scarcely anything but fuel for the burning-up of worn-out particles of the body. Just think then of the absurdity, on a hot July or August day, of such a dinner as is common among farmers, consisting of fried pork (fat, nearly all carbon or *fuel*); potatoes (nearly all starch, or fuel for combustion); bread made of fine, wheat flour (starch, or fuel); butter (which is the oily, or carbonaceous portion of milk, that, if taken whole, contains all the elements of the body); pie (whose crust is indigestible fine flour and fat); and suppose we add to this hot coffee!

Think of this combination for a "tea!" fine, flour bread, perhaps "hot, shortened biscuit;" butter; fine crackers; rich cakes and cookies; sweetened preserves, or highly sweetened sauces of any kind; hot tea. How unreasonable! Bread made of unbolted, wheat flour, lean meat, fresh vegetables, and fresh fruits, are the best articles for summer diet. Butter is not a necessity, but do not think to substitute molasses, for that is quite as heating. A great many sensible folks give sincere thanks for a supper of unbolted wheat "gems," with good apple-sauce, or eat with keen relish and an intelligent expectation of benefit, "wheaten grits" boiled soft, with strawberries and other fruits. The melons and berries and tree fruits that come with the season, are wholesome and comforting articles of summer diet, *if taken as food at meal times*. Hot food and hot drinks always raise the bodily temperature. Hearty dinners might often be taken cold as well as hot in summer. Cold meats sliced, cold beans or peas, cold puddings (not too starchy nor too sweet), and if tea or coffee must be had, they may be taken cold. Use *very* cold drinks with moderation; they are not best taken with food; as they lower the temperature of the stomach below the point necessary for good digestion.

Some folks shut all their doors and windows at nightfall, because they think the night air is injurious. Such a supposition implies a doubt of the Creator's wisdom; for what air is it natural for us to breathe in the night if not the air of night? The experience of soldiers shows how groundless is this whim. It is a great comfort to let in the cool, evening air, after a very warm day, especially if it can be done without filling the room with insects. Persons with delicate lungs or weak bowels must observe the change and guard against taking cold. Many cases of cholera-infantum have been caused by carelessly allowing children to go without sufficient clothing over the bowels and lower limbs in the cool mornings and evenings.

P. S.—Through some mistake, the pattern for baby's wrapper in the June number was drawn too low in the neck on the back. Any person of experience would know that it should be cut nearly straight across, or only slightly curved on the back of the neck. The band with straps opens in front.

Cooking Tomatoes.

The tomato is a vegetable that is difficult to spoil, and it is generally acceptable even when rudely cooked. It is capable of so much change in the cooking as to afford a pleasing variety. One way of stewing tomatoes is to choose very ripe ones, skin, and slice, rejecting any hard parts. Put in a pan with salt, butter, and pepper, and cook very slightly, not more than ten minutes. Another way is to stew the tomatoes until thoroughly soft, rub them through a sieve, and then cook them down to the desired thickness. Butter, salt, and pepper, are the usual seasoning. Those fond of the flavor of onions will find the addition of chopped onions while cooking, to make an excellent variety. Baked tomatoes are fine. Choose large fruit, and cut out a cavity at the stem end; fill this with a mixture of powdered cracker or bread crumbs, butter, salt, or other seasoning, set on a pan and bake until done. If managed carefully, the tomatoes retain their shape. Tomatoes may be broiled; cut them in halves crosswise and put them cut-side down, upon a gridiron over the fire. When the cut surface is seared, turn them and put butter, salt, etc., on each, and cook with the skin side down until done.

Poisonous Hair Dyes and Cosmetics.

Several cases of lead palsy having been traced to the use of a cosmetic called the "Bloom of Youth," the Board of Health of New York, directed Dr. C. F. Chandler, its chemist, to make an analysis of the various toilet preparations in general use. He gives an analysis of sixteen different hair dyes, all but one of which contain lead in varying proportions. The following statement from the official report shows the grains of lead contained in one fluid ounce of each.

1. Clark's Distilled Restorative for the Hair	0.11
2. Chevalier's Life for the Hair	1.02
3. Circassian Hair Rejuvenator	2.71
4. Ayer's Hair Vigor	2.89
5. Prof. Wood's Hair Restorative	3.08
6. Dr. J. J. O'Brien's Hair Restorer of America	3.28
7. Gray's Celebrated Hair Restorative	3.39
8. Phalon's Vitalia	4.69
9. Ring's Vegetable Ambrosia	5.00
10. Mrs. L. A. Allen's World Hair Restorer	5.57
11. L. Knittel's Indian Hair Tonique	6.29
12. Hall's Vegetable Sicilian Hair Renewer	7.13
13. Dr. Zebbett's Physiological Hair Regenerator	7.44
14. Martha Washington Hair Restorative	9.80
15. Singer's Hair Restorative	16.39

Six Lotions or washes for the complexion were analyzed, in none of which poisonous metals were found, excepting Perry's Moth and Freckle Lotion, which contained both Mercury and Zinc. Seven Enamels for the skin were examined, three of which contained carbonate of Lead, or White Lead. These were "Engenie's Favorite," "Snow-white Enamel," and "Snow-white Oriental Cream." Seven white powders for the skin were examined which were found to be as harmless as any other form of dirt. The Report concludes as follows: "It appears from the foregoing, 1. The Hair Tonics, Washes and Restoratives contain lead in considerable quantities; that they owe their action to this metal, and that they are consequently highly dangerous to the health of the persons using them.

2. With the single exception of Perry's Moth and Freckle Lotion, which contains corrosive sublimate, the Lotions for the skin are free from lead and other injurious metals.

3. That the enamels are composed of either the carbonate of lime, oxide of zinc, or carbonate of lead suspended in water. The first two classes of enamels are comparatively harmless, as harmless as any other white dirt when plastered over the skin to close its pores and prevent its healthy action. On the other hand, the enamels composed of carbonate of lead are highly dangerous, and their use is very certain to produce disastrous results to those who patronize them.

4. The white powders for the skin are harmless, except in so far as their application may interfere with the healthy action of the skin."

This report is so eloquent in facts that it is unnecessary to add any comments. If people will dye their hair and bedaub their skins it is well to know the nature of the materials they are using.

Graham Mush.—Faith Rochester says: Does anybody want to know how to make Graham mush? There are people who raise the best of wheat, year after year, and live on fine flour always, and have no idea how sweet, as well as healthful, the unbolted, or Graham flour is. Make Graham mush as you do corn-meal hasty-pudding, sifting the meal with your hand slowly into boiling water, stirring briskly meanwhile. A few minutes' boiling seems to cook it sufficiently, though many cook it longer. Sweetened cream is an excellent dressing for it, and then if you add fresh berries!—well, just try it! Many persons like it with unsweetened cream or milk, as they eat hasty-pudding. Wheaten grits are usually bought in paper parcels with directions for cooking. They are the wheat kernels with the outer woody fiber stripped off; and are excellent, especially for persons with inflamed stomachs who cannot bear the bran of Graham.

How to use Canaille.

The request of a correspondent for information upon the use of Canaille, has brought out several answers. We give the following from "J. G. C.," Knoxville, Tenn.—There are several ways in which Canaille, or wheat shorts (or midlings, as it is termed by some), can be prepared as food, each of which will be found both palatable and acceptable.

Bread and Biscuit.—Mixed with an equal part of wheat flour it makes a nice, wholesome bread, a little dark colored perhaps, but light, spongy, and sweet.—It also makes most excellent biscuit, which, if served up before they are entirely cold, and with butter and honey, will be found very fine.—Mixed with a little Indian meal it makes superior griddle cakes, if served hot.

Canaille Pudding.—Take sour milk, a little saleratus, and if the milk is not pretty sour, a little cream of tartar, a couple of eggs, and canaille stirred in until the batter is a little too stiff for plain cake, bake in any convenient dish, in a rather slow oven, serve hot with hard or wine sauce.

Hints on Cooking, Etc.

Water-Ices.—These are an agreeable change from ice-cream, and are by many considered preferable to it. They may be made from any juicy fresh fruit, or various flavors may be given without the use of fruit. Pine-apple, Orange, Raspberry, and Currant, are the fruits most commonly used. A syrup is made in the proportion of one pound of the best white sugar to a pint of water. If the sugar is clean, this will need no straining or clarifying. Equal parts of this syrup and fruit juice are used and frozen in the same manner as ice-cream. In freezing, water-ices require more thorough stirring than ice-cream, to prevent them from becoming lumpy. The addition of lemon juice will improve the flavor of pine-apple and other water-ices from fruits that do not contain much natural acidity.

Raw Tomatoes.—The almost universal popularity of the tomato has led to a great variety of ways of eating it. Probably more are consumed raw than in any other way. The manner of dressing them varies greatly. Some use only vinegar and salt. Others, vinegar, salt and oil, and others again, vinegar and sugar. We often see them served with a regular salad dressing, but the general way is to place them upon the table plain, and allow each one to prepare them to suit his own fancy. They are usually sliced with their skins on, but those who are very particular about such matters scald and peel them before slicing, and the slices are put with pieces of ice to cool them and restore their firmness. Tomatoes when eaten raw show the qualities of the different varieties better than when cooked.

Pickles.—J. M. Fleming sends the following: "Pick each morning, and put into weak brine, allowing them to remain three or four days, or long enough to become sufficiently salt for use, putting in mustard pods and horseradish leaves to keep them green. Then take out and drain, and cover with good vinegar for a week, at which time take out again, drain, and put into fresh vinegar, adding mustard seed, ginger root, cloves, pepper, and red pepper pods—about one or two ounces each to the barrel, or to suit taste. The pickles will be nice and brittle, and pass muster at any table. Put on the vinegar cold, and add the spices as desired; but the vinegar must be changed once, as the large amount of water in the cucumbers so reduces the vinegar that this change is absolutely necessary; and if they should lose their sharp taste, just add a little molasses or spirits, and they will be right again. Mrs. F. put hers up in this manner last season, and we never had so good pickles; they were always ready for use, and kept well.

Fruit Salads.—This is a term given by Europeans to mixtures of fresh fruit dressed with sugar, with or without wine, and a little cinnamon. Raspberries and currants together, and peaches and dried oranges separately, are prepared in this way.

BOYS & GIRLS' COLUMNS.

The Latest Street Toy.

I have told you, boys and girls, that lots of toys are sold along the streets. They come thickest just about Christmas, but the approach of Fourth of July brings out some too. These, in keeping with the season, are of a kind that go off with a pop or a bang. Last year it was a little gun for shooting torpedoes, and this year the latest toy makes noise enough to satisfy the most patriotic. It is only a pop-gun. The original pop-gun was a quill with a wooden rammer, and a slice of potato for wadding. We used to cut out a pellet of potato by pushing the quill through it, and push the pellet a short way into the quill; then another pellet of potato was cut out and pushed with the rammer. The air between the two pieces of potato was squeezed into a small space, and when the other piece could no longer resist the pressure, out it went with a pop. An improvement on this was a wooden tube with a rammer, furnished at the end with a piece of leather, which made it fit closely to the tube. This went in at one end and the other was stopped by a cork. The rammer being thrust in, compressed the air just as was done between the two pieces of potato, and the cork would be driven out with a loud pop. This new toy that I was speaking of is an improvement on this. It is an iron tube with a close-fitting rammer, but instead of the further end being stopped by a cork, it is closed by a piece of writing paper which is held on by an easily fastened ring, which clamps it closely to the end of the tube. The rammer being smartly pushed down, the paper bursts with a bang as loud as a small pistol. Here is a chance to celebrate our noisy holidays without any smoke or smell of powder, and no danger of getting burned. I don't know how the boys will like it, for I used to think that the smell of the powder was half the fun; but parents will be largely in favor of having the noise, if noise must be made, without the risk that attends crackers, double-headers, and fire arms.

WILL WARREN.

Among the Spice Islands.

BY "CARLETON."

A few months ago I was far away on the other side of the globe—wandering over some of the islands from which we obtain pimento, cloves, nutmeg and cinnamon. It was delightful to sail along their evergreen shores, with soft breezes fanning my cheeks, and inhale the delicious odors wafted from forests blooming with myriads of fragrant flowers; to look into inlets, bays and sheltered coves, where the waves rippled on pebbly beaches, and where palm-trees reared their tall trunks and waved their green plumes in the balmy air.

Open your Atlas to Asia and you will see Sumatra, Java, Borneo, and hundreds of smaller islands in the Indian Archipelago, from whence we obtain our spices.

Day after day our steamer plowed its way through the calm waters, and I beheld entrancing scenes, and at night I looked out upon a sea of fire! Many of the boys and girls that live in the country probably never have had an opportunity of seeing the beautiful phosphorescent light that sparkles on the waves of the ocean, and which is so brilliant in the tropical regions that when night comes on, the water seems to be on the point of bursting into flame.

I shall never forget one evening when we came to anchor under the lee of an island off the coast of Malacca. The stars were shining, but the night was dark, and our vessel as it glided along turned up a great furrow that reached miles away; it widened on one side far out to sea, and on the other broke in waves of light against the shore. When the anchor went down into the water a sudden flash of light spread out in circles over the glassy surface of the sea. The native boatmen as soon as they heard it drop, launched their light canoes and came off to see us. Long before they reached the ship—long before their dusky forms could be distinguished through the growing darkness, we saw the water changing to fire with every dip of their oars. As I looked over the side of the vessel I saw innumerable lines of light beneath the surface, winding swiftly here and there, now circling round the ship, now diving beneath it and coming up the other side. Sometimes one line chased another, and then the two went in zigzags or turned sharp corners. There were numerous sparks of fire and they all seemed to be playing tag! The fishes did all this.

What a fish story! I do not wonder that you say so, but it is true for all that. It seemed as if each fish carried a lighted match in his mouth! A shower came on and every rain drop as it touched the water seemed changed to fire! It was a wonderful sight. In the morning I jumped into one of the little boats and the copper-colored, black-haired native with a paddle shaped like a mustard spoon, took me to the shore and I wandered into the dark forest where the tall trees threw out stout branches and locked arms with their neighbors, and formed a green roof over my head. A monkey sitting on one of the branches showed his teeth at me. Another hopped down from a high limb and made up a face. A third screamed as loud as he could, which probably was a signal cry; for a whole troop came hopping from limb to limb, yelling, grinning and chattering. Not understanding the monkey language, I don't know precisely what they said, but am pretty sure that they were making fun of me; perhaps to pay me off for making fun of those of their race that come to this country in company with the organ grinders, and who wear their little straw hats on one side in imitation of some young men I know of. Besides the monkeys, there were parrots, macaws, and birds-of-paradise, with brilliant plumage, making the forest ring with their singing, only their songs are not near so sweet as those of the lark, the thrush, or the robin. Birds in the tropics are not such fine songsters as those that build their nests in our orchards and gardens.

But a tropical forest is a wonderful thing to see. Parasitic plants, like the mistletoe, which do not draw their nourishment from the ground, but from a tree, hang in dark masses, or droop in graceful festoons from the bending limbs; others cling to the rough bark, and twine round the gigantic trunks; and rattans, not larger than a whip-stick, wind up to the highest branches, then run along the interlaced limbs from tree to tree. The monkeys gather upon them in groups, and swing to and fro like children in a swing. The forest was dark and gloomy, for the leaves of the palms are so broad that they almost shut out the sunshine. Only think of a leaf being large enough for an umbrella! The men who sell pine-apples and mangoes in the villages put up one for a booth and sit beneath it through the day, and sleep under it at night. It is sufficient to protect them from the sun or rain. You will think it a big story perhaps, but the leaves of the "fan palm" are ten feet long and three feet wide! Walking up a winding path I came to the nutmeg groves and the pepper orchards. Did you ever think when you were sprinkling pepper on your food that it came from those distant islands? Yet there were the groves from which the berry is gathered. A spicy flavor pervaded all the islands, so delicious that I felt like lying down beneath the shade and doing nothing. There is no better place in the world for lazy folks. The people wear few clothes and food does not cost much. There is no winter, spring nor autumn, but always summer. After all, I should not like to live there, I had rather reside in America where we have all the four seasons. Besides, they have the Cobra—a snake so poisonous that if one were to bite me I should not live fifteen minutes. And they have Anacondas in the jungles,—twenty or thirty feet long, that would break every bone in my body or swallow me whole. Ugh!

The fire-flies, or "lightning-bugs," as I used to call them in my younger days, that buzz about our ears at night on these islands, are very large and give out a great deal of light. A half-dozen of them will keep a room well lighted; and some of the natives put them into glass bottles and use them instead of candles or lamps. The women not being rich enough to own jewels, wear fire-flies, instead, when they go to a dance. Their dances are usually held in the open air. It must be a very curious sight to see a party of ladies whirling round with lightning bugs flashing in their long, black hair! The swamps and thickets present a beautiful and enchanting scene at night when the myriads of bugs are flying about among the mangrove-trees. They keep up a constant flashing from sunset until daybreak. If you are standing during the evening by the ocean shore, both the water and the land seem to be on fire—just ready to burst into flame, and you wonder if the world is n't going to be burned up! Our black-haired boatman rows us over the calm waters, and we look down into them and behold a forest of pure white coral which the little animals are building slowly through the years. We see green and crimson, purple and violet shells lying on the bottom. And there are dark green weeds and delicate, moss-like plants growing on the rocks. We are never weary of looking at the beautiful scenes around and beneath us, whether we behold them by night or by day.

Gutta-percha-trees grow on these islands. The natives tap them just as we do our sugar maples. They evaporate the sap in the sun until it is about as thick as tar, when it is very sticky. They use it advantageously in trapping tigers. You wonder, I dare say, how they can catch such ferocious beasts with gutta-percha. There are a great many tigers in the forests, so bold that they sometimes come into the villages and carry off the inhabitants who are not very well supplied with guns. One way of catching them is by digging pits and covering them with brush, and baiting the tiger by tying pigs or goats near by. When the tiger gives a spring to catch the poor trembling animal, he goes down through the brush to the bottom of the pit which is so deep that he cannot get out. Sometimes they set a gun near the bait, and when the beast comes up to get his breakfast he touches a string which pulls the trigger, and receives two or three, or may be a half-dozen bullets in his body. But another way of catching them is by using the gutta-percha. A pig is tied to a tree in the jungle, and the gutta-percha spread upon the ground around it. When piggy is hungry he begins to squeal; and the tiger sniffing a good dinner, creeps up like a cat through the bushes, cautiously and stealthily crawling on his belly over the leaves. He comes nearer and nearer, his mouth wide open, his eyes flashing fire. He gives a leap through the air, and falls plump into the gutta-percha. He has killed the pig by a gentle pat of his paw, but in trying to eat him, he gets the sticky stuff into his mouth. In a short time his jaws, tongue, and teeth are daubed with it. He rubs his month with his paws and gets it into his eyes. It is not long before they are glued together so that he cannot see. He growls more fiercely and lashes his tail. He tries to walk, but there is a great mat of leaves sticking to each foot. He rolls over and roars in rage. The natives are on the watch, and all hands rush out from the villages with shouts and hurrahs, and with guns and spears quickly despatch him. They take off his skin and carry it back in triumph, kill a pig, make a feast, dance all night, and have great rejoicing over the capture of the beast which they dread above all others.

About Puzzles and Problems.

A large number of our young friends have sent us puzzles, rebuses, and the like, and probably have wondered why they were not published. We wish to thank those who have forwarded them and to make a general acknowledgement of those we have used and those we have not. As to those which we have not published there are several reasons for withholding them. Some of them are very well known ones, others are not good enough, and some of the arithmetical ones are too difficult. It must be borne in mind that the object of such things is to afford amusement and not to propound difficult tasks in algebra. Our young friends generally fail in their attempts at making rebuses, and we have not had a really good one sent us in a long time. It takes a peculiar talent to make a first-class rebus. The way to succeed is to keep on trying.

A Snake Levee.—Such a time with the snakes! Our artist was out one spring morning and came upon a gathering of water-snakes, like the one represented in the picture. The snakes had just come out from their winter hiding-places, and were evidently holding a mass meeting. Whether they were discussing snake rights, which watering-place they should visit for the summer, we do not know, but the squirming and twisting and hissing he describes as having been remarkable.

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"THE BOOK OF LIFE."—FROM A PAINTING BY G. POPE.—*Drawn and Engraved for the American Agriculturist.*

Here is a picture that tells its own story so plainly that there is but little need of explanation. The little one is allowed to look into the great family Bible under the care of her larger sister. Most of the older boys and girls can recollect what a treat it was, when they were too young to read, to look at the pictures in the Bible and to have some older persons explain the sacred scenes and incidents they illustrated. Long before young people can comprehend its higher teachings, the narratives of the Bible, such as Abraham and Isaac, Joseph and his Brethren, and many others, have a great charm for them. Many of these portions afford subjects for beautiful pictures, and by the use of these, children learn much of sacred history, and not only this, they receive from them impressions of the manners and customs of eastern countries, which, in after life, are never obliterated. A well-preserved, old family Bible is a most interesting book. Infants have turned its pages with wonder, and the aged have gone to it for consolation. It contains usually the record of births and deaths for generations, and is often the only link connecting us with our ancestors. The artist has well called his picture the "Book of Life;" for the children are looking at a book to which this title applies, not only in its higher sense, but for the reason that there is no book which is so closely connected with all the various phases of our lives from early youth to old age.

Going into the Country.

Such fun for boys and girls who live in cities and villages to go into the country in this heated month of August! Winter is the time that young country folks visit the city, but now the current runs the other way. Both visitors and those who are visited can do much to make the occasion pleasant. It is too often the case that we are glad when visitors leave, because they do not take to our ways, and make us feel all the time that they are different from us, even if they do not consider themselves superior. Good-hearted boys and girls will try to adapt themselves to the customs of those whom they visit. If the ways of living are different from those you are used to at home, do not remark it. City people can make themselves very disagreeable by constantly informing their country friends that they do such and such things very differently in the city. Country children again must recollect that their city visitors are not used to many things that are every-day matters with them. If they cannot get over fences, climb a tree as readily, or endure as much fatigue as you can, do not make fun of them, but show them how to do the things that they seldom have a chance to try. Recollect, if city boys and girls visit you who live in the country, that what is perfectly familiar to you is quite new to them. Many of them never saw a spring sending its cool water up from its bed—never saw what kind of a bush huckleberries grow on, never knew how checkerberries grow—these and many other things will be quite as interesting to them as city sights are to you. Tell them the names of the different birds and let them know what ones the different songs are made by. Show them where the barn swallows build, and the big hornet's nest, that is to be treated with respect. There are so many things that you can do to entertain your friends if you go about it with the right spirit!—Then you, who are visitors, learn to use your eyes, and don't be ashamed to ask questions. You read the travels of Carleton and others, and wonder how they could have learned so much. Simply by the means we advise you to employ. Use your eyes and ask questions. When you return to the city, you too will have a story to tell, and we trust that you and your friends, who live in the country, will have enjoyed your summer's visit so much that you will be glad to repeat it another year.

Taken at his Word.

A good story is told of King Louis XIV., of France. It is said that at a state dinner, the courtiers, as was the custom, gathered around the table to see the grace with which his majesty picked the wing of a pheasant. One among them named Dominique, was a great wag, and very fond of good things. He was looking with longing eyes at some partridges which were upon the table in a gold dish. The king noticed Dominique's attention to the partridges and said good humoredly, "Give that dish to Dominique." "Really, sire, and the partridges too?" replied the ready Dominique. The king for a moment was astonished, but amused at the fellow's impudence, replied—"Yes, and the partridges too."

Answers to Problems and Puzzles.

386.—All instinct independent of reason teaches that our foes are to be avoided.—Awl-in-stinct in D pendent of reas on tea-chest-hat-our-F O's-R-toe-hee-avoided.

387.—If on the sudden he begins to rise, no man that lives can count his enemies.—If on tea he sudden-he-beg in S-toe-R eyes-gnome ant hat-L IV'S-can-cow-nt-H eyes-N M eyes.

388.—The boy was 16 years old.

389.—The letter was for I. Underwood, Andover, Mass.

390.—He hitches two horses to the mill and grinds one bushel, then he takes out one horse and puts in another and grinds one bushel; one horse has now ground two bushels, he is unhitched and the one that has already ground one bushel is put in his place, and the remaining bushel is ground. Each horse grinds two bushels.

The following have sent correct answers. Herbert Goodell, R. A. Smith, Emma and Janie Hays, E. S. Vacher, E. Cadwallader, C. A. Sibert, L. Harper, L. E. Shriver, W. C. Eveleth, E. H. Denny, "E. P. W.," F. W. Hall, J. H. Barnes, F. A. Johnson, Harry S. Brown, C. H. Smith, "Kon," J. D. Delop, Belle M. Dun, Belle M. Sheppard. L. E. Ettinge, J. N. Chingan, Geo. Shearer, C. F. Deibeit, Annie E. Lafferty, Alex. L. Rugbert, H. Hamblin, H. S. Pope, J. M. Walker, J. L. Terry, Chas. C. Latta, Marion B. Kautz, Mrs. G. T. Jenkerman. J. E. Tallman, M. Richardson, J. H. Arner. M. N. Whiteford, G. W. Morse, C. T. Wakefield, I. Shaver. Some of the above names are rather uncommon ones, and we fear that we have not read all of them correctly. Most persons write their signature more indistinctly than they do anything else, T, I and J are often made too much alike.

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For description see page 310.

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(Fig. 79, Page 57 of our Large Catalogue.)

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N. F. BOSTWICK."

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Bank drafts are the best form of remittance, but the others are all safe.

The Seymour Plaster or Fertilizer Sower,

(Page 44,) weighs 350 pounds, sowing a breadth of 8 feet. Price $60; with Grass Seed Attachment, $10 extra.

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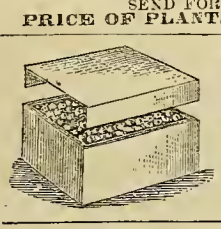

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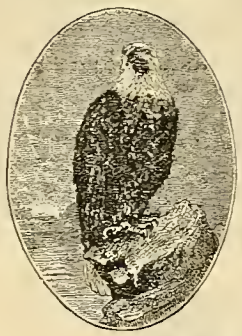

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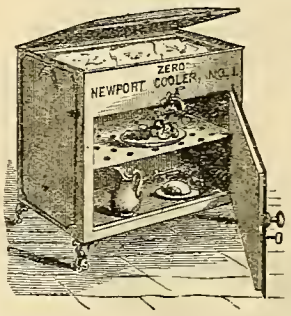

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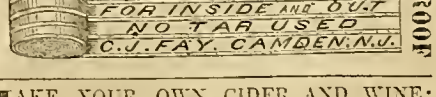
WATER  PROOF

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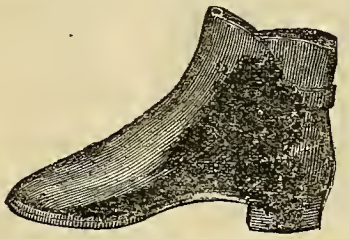

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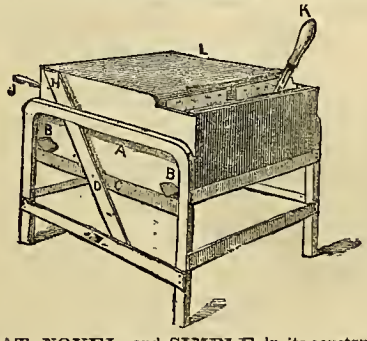

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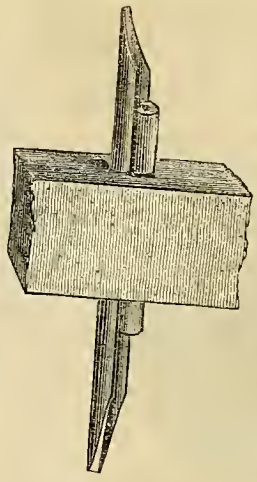

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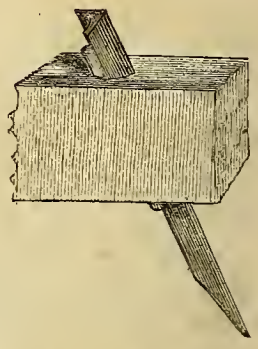

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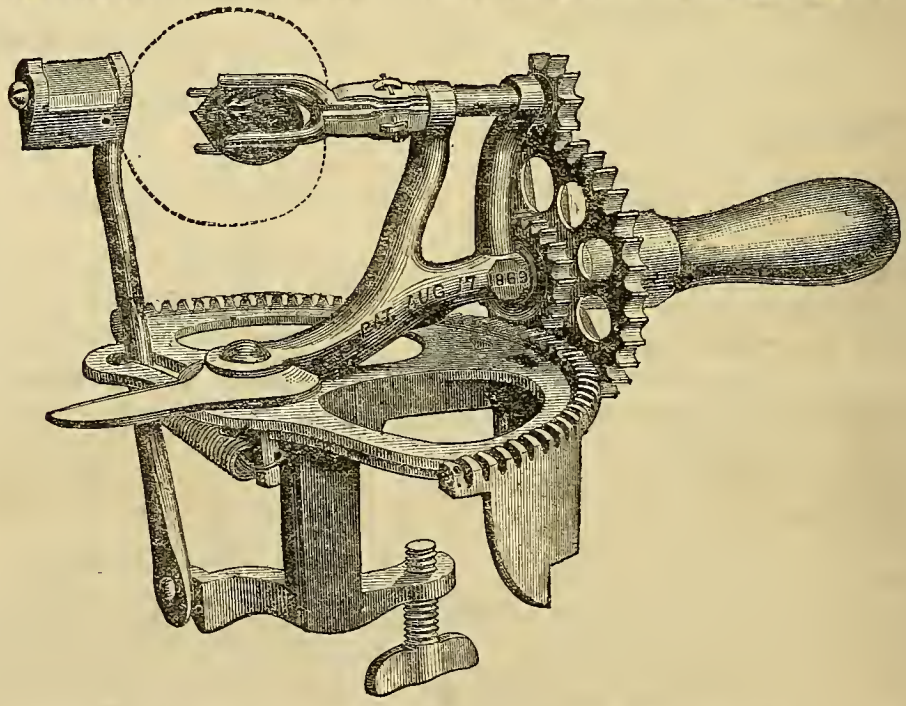

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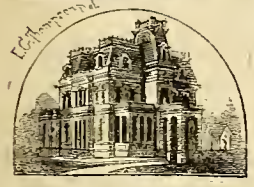

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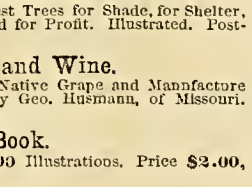

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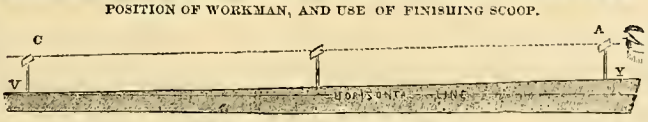

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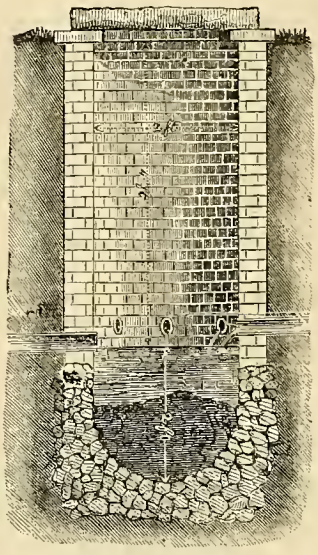

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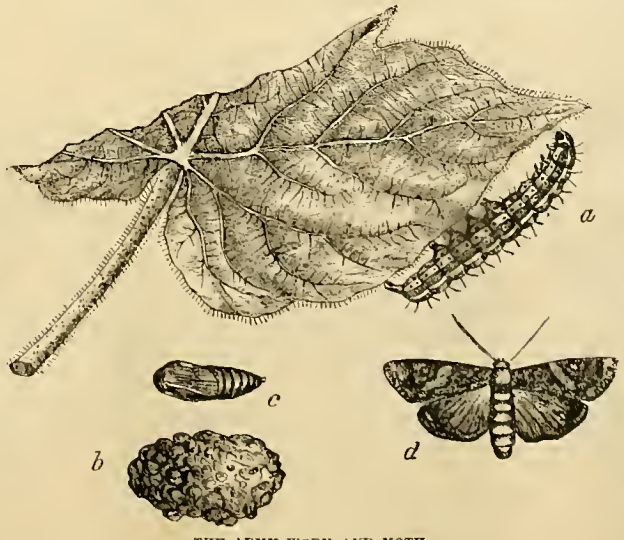

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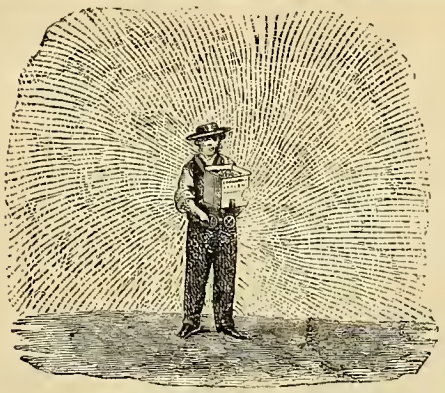

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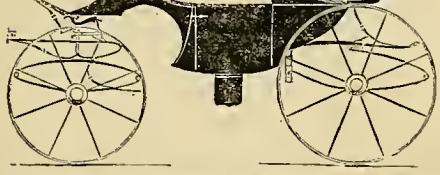

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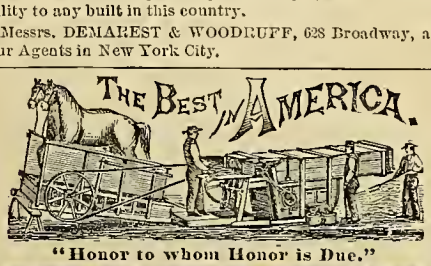

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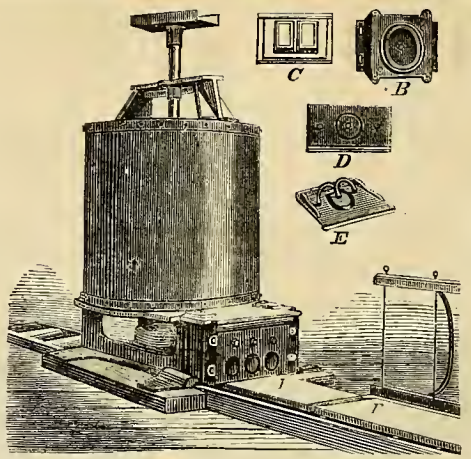

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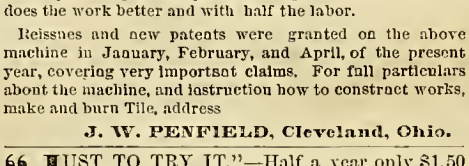

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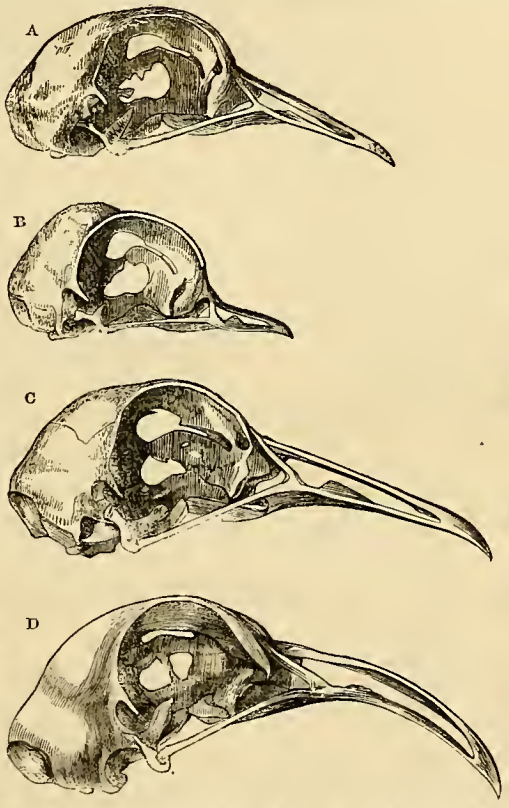
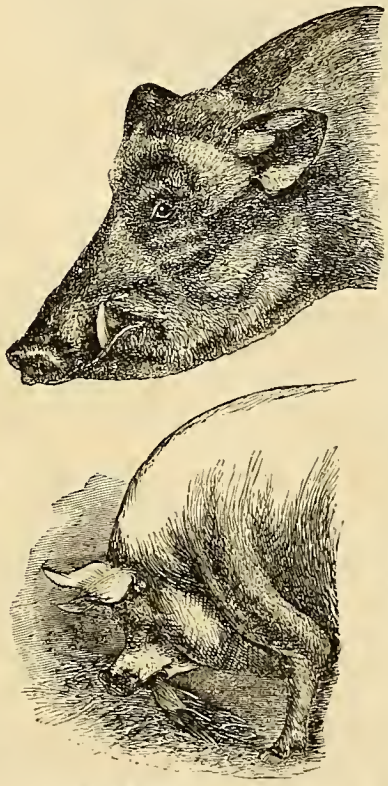


Skulls of Pigeons viewed laterally, of natural size. A.—Wild Rock Pigeon. B.—Short-faced Tumbler. C.—English Carrier. D.—Bagadotten Carrier.



Head of Wild Boar, and of a pig of the Yorkshire Large Breed, named "Golden Days," the latter from a photograph.

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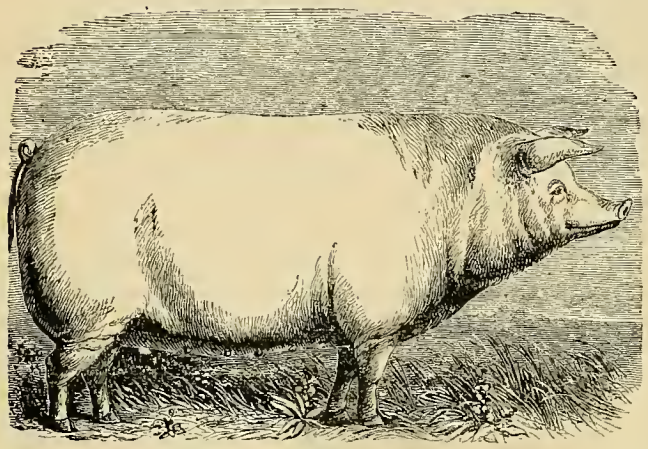

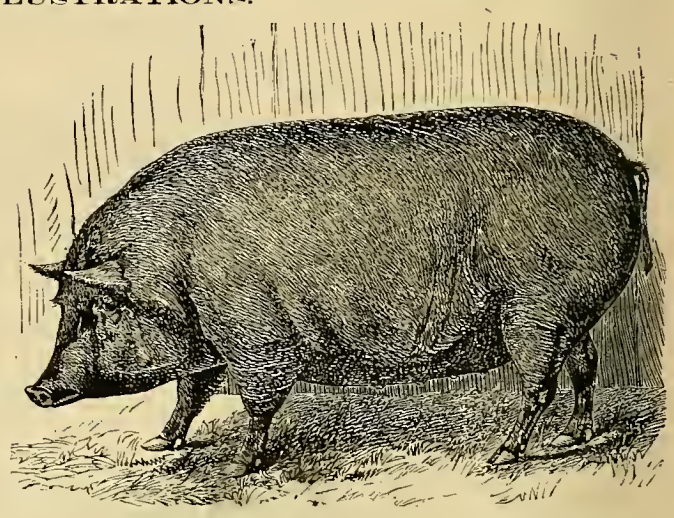

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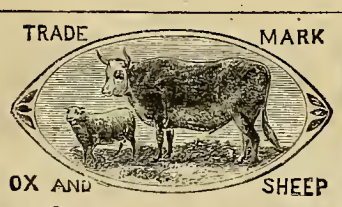

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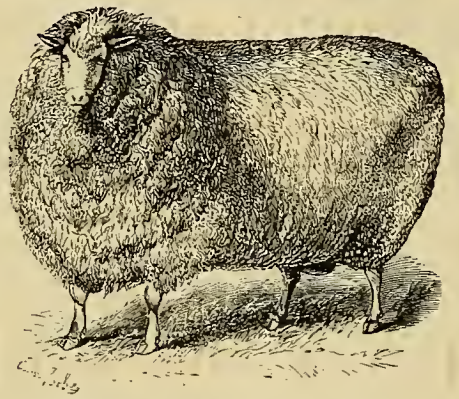

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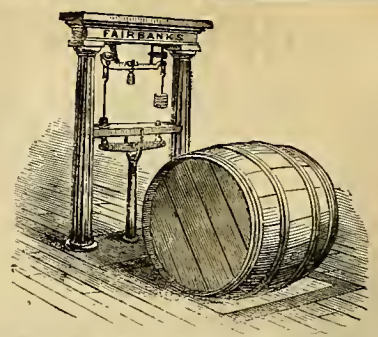

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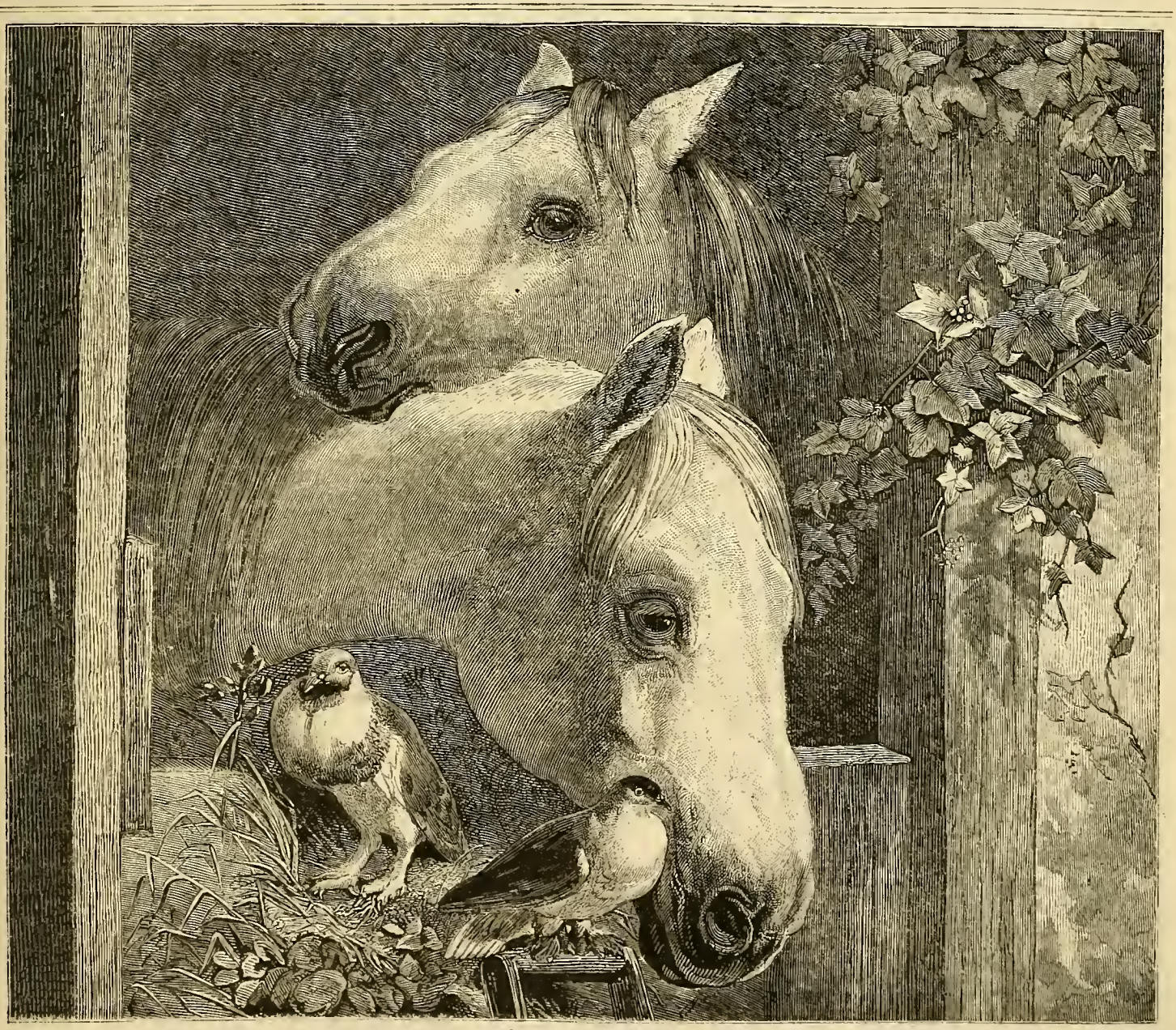

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Back Volumes Supplied.—The back volumes of the *Agriculturist* are very valuable. They contain information upon every topic connected with rural life, out-door and in-door, and the last thirteen volumes make up a very complete library. Each volume has a full index for ready reference to any desired topic. We have on hand, and print from electrotype plates as wanted, all the numbers and volumes for thirteen years past, beginning with 1857—that is, Vol. 16 to Vol. 28, inclusive. Any of these volumes sent complete (in numbers) at $1.75 each, post-paid, (or $1.50 if taken at the office). The volumes, neatly bound, are supplied for $2 each, or $2.50 if to be sent by mail. Any single numbers of the past thirteen years will be supplied, post-paid, for 15 cents each.

Calendar for September.

Day of Month.	Day of Week.	Boston, N. England, N. York State, Michigan, Wisconsin, Iowa, and Oregon. Sun rises.	Sun sets.	Mon sets.	N. Y. City, Ct., Philadelphia, New Jersey, Penn., Ohio, Indiana, and Illinois. Sun rises.	Sun sets.	Mon sets.	Washington, Maryland, Virginia, Kentucky, Missouri, and California. Sun rises.	Sun sets.	Mon sets.
		H. M	H. M	H. M.	H. M	H. M	H. M.	H. M	H. M	H. M.
1	T	5 24	6 35	10 20	5 26	6 33	10 24	5 28	6 31	10 28
2	F	5 26	6 33	11 3	5 27	6 31	11 8	5 29	6 29	11 18
3	S	5 27	6 31	11 54	5 28	6 29	11 59	5 30	6 28	morn
4	S	5 28	6 29	morn	5 29	6 28	morn	5 31	6 26	0 4
5	M	5 29	6 28	0 49	5 30	6 26	0 54	5 32	6 25	1 0
6	T	5 30	6 26	1 52	5 31	6 25	1 56	5 33	6 23	2 1
7	W	5 31	6 24	2 54	5 32	6 23	2 58	5 34	6 22	3 2
8	T	5 32	6 22	3 59	5 33	6 21	4 3	5 35	6 21	4 6
9	F	5 33	6 21	rises	5 31	6 20	rises	5 35	6 20	rises
10	S	5 34	6 19	7 3	5 35	6 18	7 2	5 36	6 18	7 1
11	S	5 35	6 17	7 27	5 36	6 16	7 27	5 37	6 17	7 28
12	M	5 36	6 15	7 52	5 37	6 15	7 53	5 38	6 15	7 54
13	T	5 37	6 14	8 18	5 38	6 13	8 20	5 39	6 14	8 22
14	W	5 38	6 12	8 46	5 39	6 11	8 49	5 40	6 12	8 52
15	T	5 39	6 10	9 18	5 40	6 9	9 21	5 41	6 10	9 25
16	F	5 40	6 8	9 53	5 41	6 8	9 57	5 42	6 9	10 2
17	S	5 41	6 7	10 33	5 42	6 6	10 38	5 43	6 7	10 43
18	S	5 43	6 5	11 21	5 43	6 4	11 26	5 44	6 6	11 31
19	M	5 44	6 3	morn	5 44	6 3	morn	5 44	6 4	morn
20	T	5 45	6 1	0 15	5 45	6 1	6 20	5 45	6 2	0 26
21	W	5 46	6 0	1 16	5 46	5 59	1 21	5 46	6 1	1 26
22	T	5 47	5 58	2 24	5 47	5 58	2 28	5 47	5 59	2 32
23	F	5 48	5 56	3 31	5 48	5 56	3 37	5 48	5 58	3 40
24	S	5 49	5 54	4 47	5 49	5 54	4 49	5 49	5 56	4 51
25	S	5 50	5 53	sets	5 50	5 53	sets	5 50	5 54	sets
26	M	5 51	5 51	7 6	5 51	5 52	7 8	5 51	5 53	7 9
27	T	5 52	5 49	7 39	5 52	5 50	7 42	5 52	5 51	7 44
28	W	5 53	5 47	8 18	5 53	5 48	8 21	5 53	5 50	8 25
29	T	5 54	5 46	8 59	5 54	5 46	9 3	5 54	5 48	9 8
30	F	5 56	5 44	9 48	5 51	5 44	9 53	5 55	5 46	9 58

PHASES OF THE MOON

MOON.	D.	BOSTON. H. M.	N. YORK. H. M.	WASH'N. H. M.	CHA'STON H. M.	OHIO AGO. H. M.
1st Quart..	2	9 14 m.	9 2 m.	8 56 m.	8 38 m.	8 8 m.
Full.....	9	5 27 ev.	5 15 ev.	5 3 ev.	4 51 ev.	1 21 ev.
3d Quart...	17	8 46 ev.	8 34 ev.	8 22 ev.	8 10 ev.	7 40 ev.
New Moon	25	1 50 m.	1 38 m.	1 26 m.	1 14 m.	0 44 m.

AMERICAN AGRICULTURIST.

NEW YORK, SEPTEMBER, 1870.

The distressing heat and dryness of the summer have been in a measure relieved by the rains of August. Serious losses in important crops are felt by many farmers, and these should, by all means in their power, try to make good the deficiency, especially of fodder. Hay will be high. Corn-stalks are the best substitute we can get, and if these are well secured, we may be able to sell hay, which it will be quite worth while to do if we can get a sufficiently high price, and have enough left to winter the stock. Farmers should contract early, if they can make favorable terms for feed. Bran, linseed and cotton-seed meal may be bought better now than later. European farmers have suffered from the drouth more than we have; and prices there are advancing, both on that account, and on account of the Franco-Prussian war, which, at the time we write, is so deeply interesting the whole civilized world. We shall probably soon feel the effect of such heavy drafts upon the productive labor of both countries engaged. The crop of wheat is excellent, and far more than is needed in this country; while the amount of corn, notwithstanding the drouth, will be immense, so far as we can now form a judgment. It is therefore to be hoped that our farmers will realize good prices for those things which they may have in abundance.

September is the seventh month by name, though the ninth of the Calendar. It is the seventh month of plowing and sowing; the seventh of growth and of tillage. It is the month of golden corn and pumpkins, of golden apples and fair pears. 'Tis the month of Farmer's Festivals, of Cattle and Implement Shows, where there is so much to see and learn that the mind wearies at the thought, as will also back and limbs before the days of sight-seeing are over. Fairs are to be very numerous and very fine this year. We have never known more interest manifested in them, and the list we prepare is longer and more complete than usual. Every farmer should try to go with his family, and to give his hired men a chance besides.

Hints about Work.

Fall Burns.—The constant destruction of grain and grass by a few hundred mice is enormous. As soon as the weather begins to cool they will come in from the fields and make great havoc. Several traps, well baited, and well watched, will thin their numbers, as also those of rats and other vermin; but the farmer should especially guard his premises from fire—which the ashes of a pipe, the end of a match, and many another bit of carelessness will easily kindle. Smokers must do their puffing, away from barns and woodsheds. There is no more terrible thing than a fire in the country, and the insurance of house, barn, and stock against it should never be neglected. Country insurance rates are moderate, and few farmers can afford not to be well insured. This subject naturally suggests

The Water Supply.—During such a drouth as we have had, the wells and springs have stood a severe test. Pumping water for cattle is hard work, but there are pumps which save a vast amount of labor, and to which a hose may be attached, and water thrown over garden and lawn, and over house and barn in case of fire. Barns may be supplied by

Cisterns.—If these can be placed underground, and at a higher point than the cattle floor, it is a great convenience; and it will pay to carry water several rods from the eaves to find an elevated spot.

Draining should be in the plan of fall work, for some thoroughly done every year will not be much felt as a heavy expense. Living springs are often tapped by drains, and thus a supply of water is secured at the outlet, which may be turned to good account. If not useful as a supply of water for the stock yard, it may serve a good purpose in

Irrigation.—When ground lies lower than an abundant source of water, there is no excuse for not irrigating. Irrigated ground must be well worked and drained so as not to remain water-soaked. When irrigation is well done, it is the most economical way possible of manuring grass.

Manure.—Everything that will rot and that is not full of weed seed should be thrown into the hog-pen, or made into compost with lime or yard manure. We prefer to subject all such material to be worked over by the hogs.

Corn.—See article on p. 338 on harvesting. *Corn-Fodder* must be cut before the buts become too hard. After drying a few days, bind in small bundles and stack up to cure. *Seed-Corn* should be selected now, by going through the best part of the field, picking out the best medium-sized, well-tipped-out, small-cobbed, early-maturing ears, where two grow on a stalk, and tying a string around them near the tip. They will be found in the husking and thrown aside unhusked. Do not select simply big ears. If the kind is good, the medium-sized ones perpetuate it better.

Grass.—Manure at this season if it has not already been done. Leave the aftermath; neither cut it nor feed it off unless it is heavy. Sow grass and clover on thin spots, and harrow in lightly with some good compost, rolling the surface afterward.

Pastures may be laid down, sowing mixed grass seed with rye; this will afford both fall and spring feed, and gradually give place to the grass as summer comes on.

Potatoes.—If the ground is needed for winter grain, dig early; otherwise, dig for market, if a good price is offered, or leave in the ground until cool weather. It is slow work to dig potatoes, and a novice will seldom allow time enough.

Roots.—Weeds should be kept out of root crops to the last. Hoeing does almost as much good now as earlier in the season; but must be done so as not to hurt the wide-spreading leaves.

Cabbages are greatly benefited by hoeing; and if it can be done, it will surely pay to take any kind of liquid manure to the field in barrels or hogsheads, furnished with spigots, so that pails or watering-pots may be filled and each plant given a good soaking once or twice a week. A good way is to make a hole with a dibble near the plant and pour the liquid into that.

Buckwheat must be cut before frost. It is not worth while to risk much after some of the grains are ripe; the immature ones will ripen out after cutting, and if it stands too long, it will shell out

badly in handling. Cut with a cradle, put up in small gavels, like little hay-cocks, and bind close to the top, to make them shed rain.

Beans.—When the pods turn yellow, and most of the greenest ones have nearly full-sized beans in them, it is time to pull them. They must be stacked, so as not to rest on the ground. We drive two stakes six inches apart and lay a stone between them, and a bunch of weeds on each side; then crowd the bean plants in handfuls between the stakes, making the tops lie close to one stake and the roots close to the other, crossing alternately.

Sorghum appears to be fast "playing out." It is just as good for syrup and for fodder as ever; but sugar and sugar-house syrup and N. O. molasses are cheaper than they were. Trim and cut before frost, and work up as soon as possible, certainly before hard-freezing weather, if the highest value would be secured.

Tobacco.—See article in August number in reference to the time to cut, and item in "Basket."

Wheat may be sown any time this month. The land should be well prepared and in good heart, or no good results need be anticipated. See articles in July and August "Hints about Work."

Rye is seldom sown before October, as it makes too heavy a growth before winter. It may, however, be put in early with a view to securing fall feed, and if properly managed, the crop will not be injured, but rather benefited by the operation.

Soiling Crops.—Wheat and rye sown early upon very rich ground, will yield abundant feed this fall, and the earliest green fodder in the spring. Nearly twice as much seed should be used to the acre, as if sown for grain simply. For whatever purpose sown, it is almost always best to drill wheat and rye.

Cows.—With the cool weather, butter-making and packing demand the attention of dairy-women. The cows should be fed pumpkins, without the seeds, with some bran or meal to increase the flow of milk. They require salt and abundance of fresh water. A cow should never go thirsty nor have to travel far for water; it checks the milk secretion more than most people are aware.

Beeves on good pastures will make flesh fast; a few pumpkins and a pailful of corn-meal mush, at noon or evening daily, will push them along fast.

Horses may be turned out to feed by night, and kept stabled by day, until after frost has killed the bot-fly. Sponge the spots, on which eggs are laid, with strong carbolic soap.

Sheep.—Keep the rams fettered or shut up, unless you want lambs dropped in January.

Swine.—Begin to increase the feed in quantity, and to improve its quality. Feed any old corn which may be left over, always ground and cooked, if you would feed with economy.

Work in the Horticultural Departments.

In September we not only harvest many crops, but we sow and plant for another year. The true horticulturist will not only do this in his orchard and garden, but will make it with himself a season for harvesting ideas, and acquiring facts to be of use to him hereafter. To this end he will attend all the accessible fairs and exhibitions to learn what others have been doing—and not only this, show what he has been doing himself. Be sure and attend the fair nearest home, and as many others as practicable.

Orchard and Nursery.

Planting may usually be done this month, and in localities where the autumns are mild, it is preferable to spring for all except stone fruits. The work is done more thoroughly, and the trees usually succeed quite as well as those set in spring.

Nursery Trees should be ordered in good season that the planting may be done before heavy frosts.

Stripping the Leaves.—We are frequently asked if stripping the leaves from trees taken up in the fall is injurious to them. It is a common practice among nurserymen, and we see no objection to it if the leaves have finished their functions in ripening the wood and perfecting the buds. It merely anticipates what would take place at the first storm.

Picking Fruit.—It is easy to lose money by the careless handling of fruit. If there is neglect in the picking and packing, much of the care expended in raising goes for nothing. Our most successful fruit men are those whose fruit opens in the market in the best shape. Autumn varieties should be picked when fully mature, but before they show signs of softening, as they should reach the retailer before they are in eating condition. Use new barrels. Half-barrels are preferred for pears, though many use crates. In either case the package must be closed by pressure, so that the fruit will not shake. All good fruit should be hand-picked; some ladders for the purpose are figured on page 342.

Fallen and *Refuse Fruit.*—It does not pay to send poor fruit to market; all the cullings as well as that which falls from the trees should be utilized at home. Apples, ground and pressed to make vinegar, pay a good price; pears may have the sound portions cut out and dried, and peaches may be dried; and those portions of all fruits not available for other uses, may go to the piggery.

Budding.—The stocks budded last month will probably need to have the ties cut. Pear upon quince, and peaches may be budded.

Seeds are to be secured. Peach and other stone fruits are to be mixed with earth and exposed to frost during winter. Peach stones are usually strewn thickly upon a bed and spaded in.

Fruit Garden.

A rich, deep soil should be secured by spading or subsoil plowing. Where the season is mild, fall planting is advisable.

Blackberries.—As soon as the crop is off, remove the old canes. Top the new growth at 5 feet if not already done, and keep the side shoots to about 18 inches. Three or four canes are enough to a stool, and these should be tied to a stake with strong twine. Hoe off all suckers.

Raspberries should have superfluous suckers kept down and the canes tied up, unless they are made self-supporting by timely shortening.

Black-caps.—If it be desired to propagate these, throw a little earth upon the pendant tips to keep the wind from moving them about. The tips will soon strike root.

Strawberries.—Plants rooted in pots may be set at any time. The spring is the favorable season for planting strawberries, but many are obliged to do it in the fall. The plants at this season should not be allowed to dry at the roots, as they with difficulty recover. If those set this fall make runners, pinch them off and keep the beds clear of weeds.

Grapes.—Use scissors in gathering and avoid unnecessary handling, in order to preserve as much as possible the bloom upon which the beauty of the fruit depends.

Currants and *Gooseberries.*—Make cuttings as soon as the wood is thoroughly ripened, and set them.

Kitchen Garden.

Clear up the ground after each crop, and manure and plow or spade for winter crops.

Beans.—Gather and salt string beans, and shell and dry Limas for winter use.

Cabbages and *Cauliflowers.*—Seeds for the spring crops are sown here this month, from the 10th to the 20th, and later further south. The object is to get a good, strong, young plant before the ground freezes. These plants are set out in cold-frames, where they are kept as nearly dormant as possible, until time to set them out in early spring. The seed is sown in well-prepared seed beds, and the plants thinned and weeded as usual.

Borecole, or Kale.—This, which is known in the market as "Sprouts," is sown this month. See page 342.

Corn.—Dry for winter use, taking that which is just fit for the table. Old sweet corn makes a very poor dried article. It is boiled long enough to set the milk, before cutting from the cob.

Cucumbers.—Gather for pickles every other day.

Celery is to be earthed up ten days or two weeks before it is required for use. For the general treatment of the crop we refer to Mr. Henderson's article, published in the June number.

Endive.—Blanch by tying, or by covering the plants with mats in dry weather.

Melons.—Choice specimens may be made to ripen evenly by putting a bit of board under them. Use for mangoes those which set too late to ripen.

Onions to be stored for winter, need to be thoroughly cured. They should not be in large enough masses to heat. Onion sets of all kinds need to be spread in thin layers in cool lofts.

Radishes.—The winter varieties may be sown. The Chinese Rose-colored we consider the best.

Shallots.—See article on page 344.

Spinach.—Its cultivation is given on page 341.

Sweet Potatoes.—By carefully opening the rows, some of the largest roots may be removed for use, and the others allowed to grow. It is necessary to dig the crop at the first touch of frost, otherwise the potatoes will not keep.

Tomatoes.—Can and make catsup while in their prime. The late ripening is apt to be watery.

Turnips.—The round varieties may still be sown. Give the Swedes good culture, and phosphate.

Manure.—Garden refuse should be turned to account in the piggery or compost heap. Burn weeds with ripened seeds, and spread the ashes.

Flower Garden and Lawn.

Now that the intense heats are over, the garden should be gay with late-blooming plants.

Cannas.—These fine ornaments to the garden are very sensitive to frost. If the foliage be injured, it is with difficulty that the roots can be preserved. When frost is threatened, lift the roots, and lay them under a shed to mature.

Chrysanthemums are so brittle that they are liable to be broken by storms, and should be staked. Pot those intended for house blooming, as soon as the buds are well formed, shading them for a few days.

Dahlias will need careful staking and tying, to keep them from injury. Side stakes, in addition to the central one, will be useful. Remove misshapen buds and flowers that have passed their prime.

Bulbs.—All of the spring-blooming ones that were taken up in summer, are to be put out at the end of the month.

Herbaceous Perennials.—The majority are better removed this month, than in spring. Sow seeds.

Peonies, if they require moving, should be transplanted this month.

Pits and Cellars for the reception of half-hardy plants, will allow one to preserve many things usually kept in a greenhouse. A dry, well-lighted cellar, which is safe from frost, will keep plants in a dormant state admirably.

Greenhouse and Window Plants.

The houses should be in readiness to receive the plants as soon as the weather requires that they should be taken in.

Potting of plants that have been turned out into the borders, will require early attention. It is better with most things to start with young plants from cuttings, as it is often difficult to bring the old ones into satisfactory shape.

Bulbs for winter blooming are to be potted as early as they can be procured; plunge the pots in a dry place, and cover them with coal ashes.

Annuals.—Sow Mignonette, Candytuft, and such others, as are desired for winter flowers.

Hanging Baskets and Window Boxes—Start these early, so that the plants may be well established by the time they are taken in-doors. Ivy forms the best groundwork for baskets.

Cuttings of bedding plants should be made for a stock of plants to keep through the winter.

Commercial Matters—Market Prices.

The following condensed, comprehensive tables, carefully prepared specially for the *American Agriculturist*, show at a glance the transactions for the month ending Aug. 13, 1870, and for the corresponding month last year.

1. TRANSACTIONS AT THE NEW YORK MARKETS.

RECEIPTS.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
27 days *this* m'th.	296,500	2,839,000	1,574,000	9,000	59,000	3,191,000
25 days *last* m'th.	378,000	3,341,900	1,228,500	76,000	53,000	731,000

SALES.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
27 days *this* m'th.	468,000	4,143,000	1,831,000	38,500	5,100	1,573,000
25 days *last* m'th.	283,000	4,237,000	1,568,000	109,000	13,500	1,411,000

2. *Comparison with same period at this time last year.*

RECEIPTS.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
27 days 1870	296,500	2,869,000	1,574,000	9,000	59,000	1,391,000
28 days 1869	317,500	3,558,000	1,289,000	71,000	39,000	879,000

SALES.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
27 days 1870	468,000	4,143,000	1,831,000	38,500	5,100	1,573,000
28 days 1869	465,000	5,478,000	2,293,000	89,000	——	1,396,000

3. *Exports from New York, Jan. 1 to Aug. 13:*

	Flour.	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
1870	1,060,227	10,236,257	220,647	65,734	——	11,295
1869	812,764	9,099,803	1,537,077	72,811	——	42,727
1868	575,091	3,209,204	4,903,872	153,093	——	40,643

4. *Stock of grain in store at New York:*

1870.	*Wheat,* bush.	*Corn,* bush.	*Rye,* bush.	*Barley,* bush.	*Oats,* bush.	*Malt,* bush.
Aug. 8	1,438,876	580,973	25,437	106,101	691,766	119 046
July 11	1,281,913	483,540	28,816	68,609	655,068	109,478
June 7	706,478	69,845	2,891	94,650	488,143	108,775
May 10	1,158,052	110,829	20,502	126,043	410,517	83,000
April 11	1,815,186	285,946	23,249	187,172	756,811	99,988
March 7	2,509,608	481,176	39,089	278,905	1,105,194	97,139
Feb. 11	2,932,638	534,003	62,112	322,425	1,199,672	36,214
Jan. 12	3,423,028	591,903	38,289	24,900	1,310,935	85,405
1869						
Dec. 11	3,810,562	833,909	59,043	285,906	1,386,591	77.097
Nov. 10	1,616,030	693,085	31,700	31,584	281,581	66,782
Oct. 11	978,272	445,068	34,467	5,948	120,956	67,091
Sept. 6	745,121	127,736	56,081	——	183,920	134,870
Aug. 9	634,262	253,155	75,797	331	50,219	105,458
July 10	531,657	328,613	71,418	2,966	259,985	97,177

5. *Receipts at head of tide-water at Albany each season to Aug. 7th:*

	Flour, bbls.	*Wheat,* bush.	*Corn,* bush.	*Rye,* bush.	*Barley,* bush.	*Oats,* bush.
1870	154,900	6,732,600	1,300,000	271,000	82,400	1,269,700
1869	185,000	7,350,000	2,600,400	217,100	11,800	1,737,600
1868	121,400	5,073,900	8,226,000	159,600	326,500	4,359,200
1867	61,700	316,400	5,682,700	126,200	85,100	1,646,200

CURRENT WHOLESALE PRICES.

	July 13.	August 13.
PRICE OF GOLD	112⅝	117⅛
FLOUR—Super to Extra State	$4 85 @ 6 35	$5 25 @ 6 75
Super to Extra Southern	5 90 @ 9 75	5 50 @16 00
Extra Western	5 35 @ 9 75	5 70 @10 00
Extra Genesee	6 40 @ 8 25	6 75 @ 8 75
Superfine Western	4 85 @ 5 25	5 25 @ 5 75
RYE FLOUR	5 10 @ 6 30	5 45 @ 7 85
CORN-MEAL	5 20 @ 5 75	5 25 @ 6 25
WHEAT—All kinds of White	1 45 @ 1 90	1 55 @ 1 90
All kinds of Red and Amber	1 09 @ 1 50	1 00 @ 1 58
CORN—Yellow	1 07 @ 1 15	1 00 @ 1 10
Mixed	88 @ 1 07	82½@ 90
OATS—Western	62 @ 71½	56 @ 66
State	69 @ 72	63 @ 66
Canada	61 @ 66	Nominal.
RYE	97 @ 1 02	1 05 @ 1 25
BARLEY	67 @ 1 05	Nominal.
HAY—Bale ₱ 100 lb	70 @ 1 15	85 @ 1 25
STRAW, ₱ 100 lb	50 @ 1 10	60 @ 1 15
COTTON—Middlings, ₱ lb	29 @ 29¾	19½@ 20¼
HOPS—Crop of 1869, ₱ lb	10 @ 25	10 @ 25
FEATHERS—Live Geese, ₱ lb	80 @ 85	75 @ 85
SEED—Clover, ₱ lb	13¾@ 14¾	13¾@ 14
Timothy, ₱ bushel	7 00 @ 7 50	7 00 @ 7 25
Flax, ₱ bushel	2 30 @ 2 50	Nominal.
SUGAR—Brown, ₱ lb	8¾@ 11¼	8¾@ 11¾
MOLASSES, Cuba, ₱ gal	22 @ 42	20 @ 42
COFFEE—Rio, (Gold, in bond)	9¼@ 13	9¼@ 13
TOBACCO, Kentucky, &c., ₱ lb	6 @ 14	6½@ 14
Seed Leaf, ₱ lb	6 @ 70	8½@ 55
WOOL—Domestic Fleece, ₱ lb	35 @ 55	38 @ 56
Domestic, pulled, ₱ lb	23 @ 45	25 @ 45
California, unwashed	17 @ 30	21 @ 32
TALLOW, ₱ lb	9¼@ 9¾	9¼@ 10¼
OIL-CAKE—₱ ton	42 50 @45 00	44 00 @45 00
PORK—Mess, ₱ barrel	28 00 @29 75	29 00 @29 75
Prime, ₱ barrel	24 00 @28 75	24 00 @26 00
BEEF—Plain mess	11 00 @18 00	12 00 @19 50
LARD, in trcs. & barrels, ₱ lb	14¼@ 16¾	15½@ 16¾
BUTTER—Western, ₱ lb	15 @ 30	15 @ 40
State, ₱ lb	22 @ 35	17 @ 40
CHEESE	5 @ 14½	4 @ 14½
BEANS—₱ bushel	1 20 @ 2 50	1 20 @ 2 60
PEAS—Canada, in bond, ₱ bu	1 12 @ 1 15	1 10 @ 1 12
EGGS—Fresh, ₱ dozen	25 @ 28	23 @ 26
POULTRY—Fowls & Chickens	20 @ 21	21 @ 22
Chickens, Spring, ₱ pair	75 @ 1 25	50 @ 1 00
Turkeys, ₱ lb	20 @ 21	22 @ 23
Geese, ₱ pair	1 50 @ 2 00	1 50 @ 1 75
Woodcock, ₱ pair	— @ —	1 00 @ —
Green Corn, ₱ 100	— @ —	50 @ 1 00
POTATOES, ₱ bbl	3 50 @ 6 50	1 50 @ 3 50
SWEET POTATOES, ₱ bbl	— @ —	— @ —
TURNIPS—₱ bbl	@	2 00 @ 2 25
CABBAGES—₱ 100	5 00 @ 8 00	7 50 @11 00
ONIONS—₱ bbl	— @ —	3 00 @ 3 50
CRANBERRIES—₱ bbl	— @ —	— @ —
BROOM-CORN—₱ lb	8 @ 13	7 @ 11
Tomatoes, per basket	1 75 @ 2 50	50 @ 75
Peas, green, per bbl	2 00 @ 3 00	2 00 @ 3 00
Cucumbers, ₱ 100	1 75 @ 2 25	— @ —
Squashes, ₱ bbl	2 00 @ 3 00	1 00 @ 1 25
Blackberries, ₱ quart	— @ —	6 @ 10
Whortleberries, ₱ bushel	3 00 @ 5 00	3 00 @ 4 00
Peaches, ₱ basket	— @ —	75 @ 1 50
Plums, Gage, ₱ bushel	— @ —	3 00 @ 3 50
Pears, ₱ bbl	— @ —	2 00 @10 00
Melons, ₱ bbl	— @ —	1 50 @ 4 00
APPLES—₱ barrel	3 00 @ 6 00	1 00 @ 4 50

Under the earlier war reports, Gold was advanced to 123, but since the successful invasion of France by the Prussians, it has receded to 116¼, closing as we write at 117@117⅛.....Breadstuffs have been in active demand, opening at much firmer prices, under extensive purchases, largely for export and on speculative account, but closing heavily, with a very limited inquiry, and some pressure to realize on nearly all articles in the line. The call from shippers has been quite light within the past few days, and the home-trade wants have been on a restricted scale. Some speculative holders have been pressing supplies on the market, to the serious depression of prices. Very little of the wheat arriving this season is in good condition. Most of it is warm and soft, with more or less of an offensive odor from it, rendering such grades unfit for export by sailing vessels. Corn, too, arrives in very poor order, as do likewise many boat loads of the lower grades of Western Oats.....Cotton has been in light demand and quoted cheaper....Provisions have been moderately dealt in at variable rates, closing generally in favor of buyers... Wool has been more sought after, and has been quoted rather higher. The low and medium qualities have latterly been in most favor with purchasers.....Hay has been in fair request at buoyant prices....Hops, Seeds, and Tobacco, have attracted but little attention at our quotations.

New York Live-Stock Markets.—

WEEK ENDING.	*Beeves.*	*Cows.*	*Calves.*	*Sheep.*	*Swine.*	*Total.*
July 19th	6,486	102	2,018	29,864	17,584	56,054
do. 26th	7,268	90	2,986	35,403	14,256	60,012
August 2d	7,083	93	2,254	26,478	13,853	49,766
do. 9th	6,912	73	2,116	34,032	13,299	56,432
Total in 4 Weeks	27,749	372	9,374	125,777	58,992	222,264
do. *for prev. 4 Weeks*	25,720	470	12,555	106,005	63,877	208,617
Average per Week	6,937	93	2,343	31,444	14,748	
do. do. *last Month*	6,430	117	3,139	25,501	15,969	
do. do. *prev's Month*	6,626	78	3,013	19,785	20,028	
Average per Week, 1869	6,275	92	1,752	28,836	15,348	
do. do. do. 1868	5,733	105	1,588	27,182	18,809	
do. do. do. 1867	5,544	64	1,320	22,154	20,605	
do. do. do. 1866	5,748	94	1,200	20,000	13,000	
do. do. do. 1865	5,235	118	1,500	16,001	11,023	
Total in 1869	326,280	4,827	91,083	1,499,509	798,189	
Total in 1868	298,128	5,466	82,571	1,413,419	978,061	
Total in 1867	293,832	3,369	69,911	1,174,154	1,102,643	
Total in 1866	298,880	4,885	62,420	1,040,000	612,000	
Total in 1865	270,274	6,161	71,991	836,735	573,190	
Total in 1864	267,605	7,603	75,621	782,462	660,277	

Beef Cattle.—It will be seen by the table given below that the range of prices is much greater than heretofore reported. This is owing to the appearance of a large number of Texas cattle which have arrived in poor condition, and met with slow sale. While thin stock could only be disposed of at our lowest figures, and at a loss to the holders, really good beeves have not declined much since our last report. There is always a sale for really good animals, while it is difficult, especially at this season, to dispose of poor ones at enough to cover their cost. The abundance of fruits always affects the sales of the butchers at this season, and the high price of ice also diminishes the consumption of fresh meats. At the same market the poorest grade sold as low as 7c., while the choicest went as high as 16½c., and it costs as much to transport the one as it does the other. We give a list of the range of prices, average, and figures at which the largest sales were made:

July 19th, ranged 9 @17 c. Av. 15 c. Large sales 14 @16c.
do. 26th, do. 8 @17 c. do. 14½c. do. do. 13½@15½
Aug. 2d, do. 8 @16½c. do. 14½c. do. do. 13½@15½
do. 9th, do. 7 @16½c. do. 14 c. do. do. 13 @16

Milch Cows.—The market may be reported as fair; supply and demand keeping about even. The extreme prices are from $65 to $110, the last named being for what in the market are called "fancy."..... **Calves.**—The market is somewhat better than at our last report, and supplies have been lighter. The choicest lots have brought 11c. and even 11½c. for extra. Grass-fed may be quoted at 5c.@7c., but they are more frequently sold by the head at $8@$11..... **Sheep and Lambs.**—The market has been crowded by large arrivals of mostly poor stock, lambs particularly being in excess of the demand. Notwithstanding the full supply, really good sheep have brought 6c.@6½c. per lb., and lambs 9½c., while thin stock went at very low rates, some as low as 3½c..... **Swine.**—The receipts have been very light, and prices may be quoted at 12c.@12½c. for dressed.

The Record of Humbugs, as given in another column, will surprise those who have not looked into this matter, or appreciated the importance of the investigations, and the constant attention given to this subject almost exclusively in the *American Agriculturist*. It is impossible to go into any neighborhood where there are not a dozen if not half a hundred or more persons who have been beguiled out of hard earned money by this vile horde of thieves, who swindle through the mails, by gift enterprises, lying schemes, etc. If this journal had accomplished no other good end, we know it has saved to the country at large, many millions of dollars more than it has ever cost its readers; and this is the almost annual testimony of our readers. Disagreeable as the task is, we feel impelled to continue the work hereafter with unabated effort. Our readers can help by promptly giving information of all new schemes.

The Fairs for 1870.

State and National Fairs.

American Institute	New York	Sept. 7, Nov. 2
Arkansas	Little Rock	Oct. 11-14
California	Sacramento	Sept. 12-19
Cherokee Country	(Ga. & Ala.), Rome, Ga.	Oct. 11-14
Colorado	Denver	Sept. 27-Oct. 1
Connecticut Poultry	Hartford	Nov. 1- 3
Conn. River Valley	Brattleboro, Vt	Sept. 27-29
Cotton States	Augusta, Ga.	Oct. 25-29
Georgia	Atlanta	Oct. 19-26
Illinois	Decatur	Sept. 26, Oct. 1
Inter-State	Pittsburgh, Pa	Sept. 12-16
Industrial Exposition	Cincinnati, O.	opens Sept 21
Indiana	Indianapolis	Oct. 3- 8
Iowa	Keoknk	Sept. 12-16
Kansas	Fort Scott	Sept. 27-30
Kentucky	Henderson	Oct. 4- 8
Maine	Augusta	Sept. 20-23
Maryland	Pamlico near Balt.	Sept. 27-30
Michigan	Jackson	Sept. 20-23
Minnesota	Winona	Sept. 20-23
Mississippi	Jackson	Oct. 10-15
Nebraska	Brownsville	Sept. 20-23
New Brunswick	Fredericton	Oct. 4- 7
New England	Manchester, N. H	Sept. 6- 9
New York	Utica	Sept. 27-30
New Hampshire, with New England, which see.		
New Jersey	Waverley	Sept. 20-23
N. Y. State Poultry Soc.	N. Y. City	Dec. 14-22
North Carolina	Raleigh	Oct. 18-21
North-western Poultry	Chicago, Ill.	Nov. 15-19
Ohio	Springfield	Sept. 12-16
Ootario	Toronto, Canada	Oct. 3- 7
Oregon	Salem	— —
Pennsylvania	Scranton	Sept. 27-30
Quebec Prov	Montreal	Sept. 13-16
St. Louis Association	St. Louis, Mo.	Oct. 3- 8
South Carolina	Columbia	Nov. 9-11
S. C. Institute	Charleston	Nov. 1- 5
Texas, Western	San Antonio	Oct. 5- 8
Vermont	Burlington	Sept. 13-16
Virginia	Richmond	Nov. — —
Wisconsin	Milwaukee	Sept. 27-30
Wollen Exposition	Cincinnati, O.	Sept. 21, Oct. 15
Washington Ter.	Wallawalla	Sept. 22-25

Horticultural and Kindred Fairs.

Exeter Hort'l	Exeter, N. H.	Oct. 5- 6
D. C. Fruit-Growers	Washington	Sept. — —
Mass. Hort'l Soc.	Boston	Sept. 20-23
Worcester Hort'l	Worcester, Mass.	Sept. 20-23
Grape Show. B. K. Bliss & Sons, New York		Sept. 27-30
Newburgh Bay Hort'l	Newburgh, N. Y.	Sept. 28-30
Pleasant Valley Grape	Hammondsport	— —
Miss. Valley Grape	St. Louis	Sept. 14-17
Virginia Hort'l & Pom'l	Richmond	Sept. 28-30
Lake Shore Grape	Ohio	— —
Penna. Hort'l Soc.	Philadelphia	— —
Indianapolis Hort'l		Sept. 3

District, County, and Local Fairs.

MAINE.

Androscoggin Co.	Lewiston	Oct. 5- 6
Aroostook Co.	Presque Isle	Oct. 4- 5
Franklin North	Phillips	Oct. 12-13
Kennebec East	China	Sept. 27-29
Oxford	South Paris	Oct. 4- 6
Penobscot Co.	Bangor	— —
Somerset Central	Skowhegan	Sept. 27-29
Waldo Co.	Belfast	Oct. 4- 6
Waldo and Penobscot	Monroe	Sept. 28-29
Washington Co.	West Jonesboro'	Sept. 28-29
Wilton	Franklin Co.	Sept. 28 —

NEW HAMPSHIRE.

Cheshire Co.	Keene	— —
Contocook Valley	Hillsboro Bridge	— —
Exeter	Rockingham Co.	Oct. 6- 7
Hillsboro Co.	Milford	Sept. 13-14
Merrimac Co.	Concord	Sept. 28-30
Rockingham Co.	Exeter	Sept. 14-16
Piscataqua Ag. Soc.	Portsmouth	Oct. — —
Suncook Soc.	Pittsfield	— —
Strafford Co.	Great Falls	— —

MASSACHUSETTS.

Barnstable Co.	Barnstable	Oct. 4- 5
Berkshire Co.	Pittsfield	Oct. 4- 6
Bristol Co.	Taunton	Oct. 4- 6
Bristol Centre	Myrick's	Sept. 21-23
Essex Co.	Ipswich	Sept. 27-28
Franklin Co.	Greenfield	Sept. 29-30
Hampshire, Franklin & Hampden, North'm'n		Oct. 6- 7
Highland	Middlefield	Sept. 15-16
Housatonic	Great Barrington	Sept. 28-30
Hampshire Co.	Amherst	Sept. 27-28
Hampden Co.	Springfield	Oct. 4- 5
Hampden East	Palmer	Oct. 11-12
Hingham	Hingham	Sept. 27-28
Hoosic Valley	North Adams	Sept. 20-22
Middlefield	Middlefield	Sept. 9-10
Middlesex South	Framingham	Sept. 20-21
Martha's Vineyard	West Tisbury	Oct. 18-19
Marshfield	Marshfield	Oct. 6- 7
Middlesex Co.	Concord	Oct. 4- 5
Middlesex North	Lowell	Sept. 28-29
Nantucket	Nantucket	Sept. 28-29
Norfolk Co.	Readville	Sept. 22-23
Plymouth Co.	Bridgewater	Sept. 29, Oct. 1
Union	Blandford	Sept. 27-28
Worcester Co.	Worcester	Sept. 22-23
Worcester North-west	Athol	Oct. 5- 6
Worcester South	Sturbridge	Sept. 8- 9
Worcester West	Barre	Sept. 29-30
Worcester North	Fitchburg	Sept. 27-28
Worcester South-east	Milford	Sept. 27-29

VERMONT.

Addison Co.	Middlebury	Sept. 27-29
Caledonia Co.	St. Johnsbury	Sept. 27-29

Lamoille Co	———		Sept. 26-28
Orleans Co	Barton		Sept. 13-14
Wilmington	Windham Co		Oct. 16
Windham Co	Newfane		Sept. 28-29

CONNECTICUT.

Danbury	Fairfield Co		Oct. 5- 8
Pequabuck	Bristol, Hartford Co		Oct. 5-
Ridgefield	Fairfield Co		Sept. 13-16
Windham Co	Brooklyn		Sept. 27-30
Woodbury	Windham Co		Sept. 14-15

NEW YORK.

Albany Co	near Albany		Oct. 3- 7
Columbia Co	Chatham Four Corners		Sept.13-16
Chautauqua Co	Westfield		Oct. 4- 6
Chenango Co	Norwich		Oct. 4- 6
Colden	Erie Co		Sept. 20-30
Cortlandt Co	———		Sept. 20-22
Cuba, Valley Point	Alleghany Co		Oct. 4- 6
Delaware Co	Walton		Sept. 13-15
Duchess Co	Washington Hollow		Sept. 13-16
Dundee	Yates Co		Sept. 27-29
Ellisburg District	Belleville,Jefferson Co		Sept. 15-16
Edmeston&Burlington	Otsego Co		Sept. 20-21
Fredonia	Chautauqua Co		Sept. 21-23
Gouverneur	St. Lawrence Co		Sept. 13-15
Gowanda	Cattaraugus Co		Sept. 22-24
Genesee Co	Batavia		Sept. 19-29
Hornellsville	Steuben Co		Sept. 28-29
Jefferson Co	Watertown		Sept. 7- 9
Lenox	Canastota		Sept. 8- 9
Lewis Co	Turin		Sept. 14-16
Livingston Co	Genesco		Oct. 5- 6
Mayville	Chautauqua Co		Sept. 7- 8
Monroe Co	Rochester		Oct. 5- 7
Otego	Otsego Co		Sept. 21-23
Putnam Co	Carmel		Sept. 6- 9
Queens Co	Mineola		Sept. 28-30
Sandy Creek	Oswego Co		Sept. 13-14
Schenectady Co	Schenectady		Sept. 13-16
Suffolk Co	Riverhead		Oct. 5- 7
St. Lawrence Co	Canton		Sept. 20-22
Saratoga Co	Saratoga		Sept. 6- 9
Southern Oneida	Clinton		Sept. 14-16
Schnevus Valley	Otsego Co		Sept. 28-30
Susquehanna Valley	Unadilla		Oct. 5- 7
Trenton Union	Oneida Co		Sept. 13-15
Tompkins Co	Enfield		Sept. 14-16
Ulster Co	Kingston		Sept. 21-23
Vienna (Oneida Co)	North Bay		Sept. 12-14
Waddington	St. Lawrence Co		Sept. 27-29
Warren Co	Glen's Falls		Sept. 13-16
Washington Co	Salem		Oct. 5- 7
Westchester Co	White Plains		Sept. 12-17
Yates Co	Penn Yan		Oct. 5- 7

NEW JERSEY.

Burlington Co	Mt. Holly		Oct. 4- 5
Cape May Co	Seaville Station		Sept. 14-17
Cumberland Co	Bridgeton		— —
Monmouth Co	Freehold		Sept. 13-15
Vineland	Cumberland Co		Sept. 14-15

PENNSYLVANIA.

Adams Co	Gettysburg		Sept. 26-29
Berks Co	Reading		Sept. 27-30
Bucks Co	Newtown		Sept. 27-29
Butler Co	Butler		Sept. 28-30
Chester Co	Westchester		Sept. 29, Oct. 1
Doylestown	Bucks Co		— —
Farmer's & Mechanic's	Easton		Sept. 20-23
Lebanon Park Ass'n	Lebanon		Sept. 20-23
Lehigh Co	Allentown		Sept. 27-30
Northampton Co	Nazareth		Oct. 4- 7
Oxford	Chester Co		Oct. 5- 7
Sullivan Co	Forksville		Oct. 4- 5
Union Co	———		Oct. 5- 7

OHIO.

Allen Co	Lima		Sept. 27-29
Athens Co	Athens		Sept. 29-30
Andover	Ashtabula Co		Sept. 7- 9
Anglaize Co	Wapakonetta		Oct. 5- 7
Ashtabula Co	Jefferson		Sept. 14-16
Augusta	Carroll Co		Sept. 26-28
Bantam	Clermont Co		Sept. 6- 9
Belmont Co	St. Clairsville		Sept. 28-30
Belmont	Belmont Co		Sept. 14-16
Blanchester	Clinton Co		Aug. 30, Sept. 2
Brookfield	Trumbull Co		Sept. 28-30
Brown Co	Georgetown		Sept. 6- 9
Butler Co	Hamilton		Oct. 4- 7
Carroll Co	Carrollton		Oct. 5- 7
Cincinnati Industrial	Cincinnati		Sept. 21, Oct. 15
Champaign Co	Urbana		Oct. 4- 6
Claridon	Geauga Co		Sept. 21-25
Clarke Co	Springfield		Oct. 11-15
Clermont Co	Boston		Sept. 6- 9
Clermont Co	Batavia		Sept. 13-16
Clinton Co	Wilmington		Sept. 7- 9
Columbiana Co	New Lisbon		Sept. 21-23
Conneaut	Ashtabula Co		Sept. 21-23
Coshocton Co	Coshocton		Sept. 20-23
Crawford Co	Bucyrus		Oct. 4- 7
Cuyahoga Co	Cleveland		Sept. 6- 9
Darke Co	Greenville		Sept. 21-24
Delaware Co	Delaware		Oct. 6- 8
Defiance Co	Defiance		Oct. 4- 7
Erie Co	Sandusky		Sept. 27-30
Fairfield Co	Lancaster		Oct. 12-15
Franklin Co	Columbus		Sept. 6- 9
Fulton Co	Ottokee		Sept. 27-29
Gallia Co	Gallipolis		Sept. 14-16
Garrettsville	Portage Co		Sept. 28-30
Geauga Co	Burton		Sept. 21-23
Greene Co	Xenia		Sept. 6- 9
Hamilton Co	Carthage		Sept. 6- 9
Hancock Co	Finley		Sept. 28-30
Hardin Co	Kenton		Sept. 28-30
Harrison Co	Cadiz		Sept. 28-30
Henry Co	Napoleon		Sept. 27-29
Highland Union	Garrettsville		Sept. 28-30
Hillsboro	Highland Co		Sept. 7- 9
Hocking Co	Logan		Oct. 7- 9
Huron Co	Norwalk		Sept. 20-22
Jackson Co	Jackson		Sept. 29-30
Jamestown	Greene Co	Aug. 30.	Sept. 2
Knox Co	Mount Vernon		Sept. 27-29
Lake Co	Painesville		Sept. 28-30
Lorain Co	Elyria		Sept. 20-23
Lucas Co	Toledo		Sept. 20-23
Licking Co	Newark		Oct. 4- 7
Logan Co	Bellefontaine		Oct. 4- 7
Mahoning Co	Canfield		Oct. 4- 6
Marion Co	Marion		Sept. 28-Oct. 1
Mechanicsburgh	Champaign Co		Sept. 5- 8
Medina Co	Medina		Sept. 28-30
Meigs Co	Rock Spring		Sept. 14-16
Mercer Co	Celina		Sept. 21-23
Miami Co	Troy		Oct. 5- 8
Monroe Co	Woodsfield		Oct. 2- 4
Montgomery Co	Dayton		Sept. 27-29
Morgan Co	McConnellsville		Oct. 4- 6
Morrow Co	Mount Gilliead		Sept. 28-30
Muskingum Co	Zanesville		Sept. 21-23
Noble Co	Sarahsville		Sept. 28-30
Northern Ohio	Cleveland		Oct. 4- 7
Orville	Wayne Co		Oct. 12-14
Ottawa Co	Oak Harbor		Sept. 11-
Perry Co	New Lexington		Oct. 5- 7
Pickaway Co	Circleville		Sept. 6- 9
Portage Co	Ravenna		Sept. 28-30
Preble Co	Eaton		Sept. 27-30
Putnam Co	Ottawa		Sept. 28-30
Richfield	Summit Co		Sept. 28-30
Richland Co	Mansfield		Oct. 4- 6
Ross Co	Chillicothe		Sept. 7-10
Sandusky Co	Fremont		Oct. 5- 8
Seneca Co	Tiffin		Sept. 27-30
Seville	Medina Co		Oct. 6- 8
Shelby Co	Sidney		Sept. 20-23
Stark Co	Canton		Sept. 27-30
Summit Co	Akron		Oct. 4- 7
Trumbull Co	Warren		Sept. 20-22
Tuscarawas Co	Canal Dover		Oct. 4- 7
Union Co	Marysville		Sept. 27-30
Union Ass'n, Mechanicsburgh	Champaign Co		Sept. 6- 9
Van Wert Co	Van Wert		Oct. 6- 8
Warren Co	Lebanon		Sept. 21-23
Washington Co	Marietta		Oct. 4- 6
Wellington	Lorain Co		Oct. 7-10
Wayne Co	Wooster		Sept. 28-30
Wood Co	Perrysburg		Oct. 4- 6
Williams Co	Bryan		Sept. 13-15
Wyandot Co	Upper Sandusky		Sept. 28-Oct. 1

MICHIGAN.

Bay Co	Bay City		Sept. 28-30
Berrien Co	Buchanan		Sept. 21-23
Benzie Co	Benzonia		Sept. 28-29
Cass Co	Cassopolis		Sept. 28-30
Calhoun Co	Marshall		Oct. 4- 6
Central Michigan	Lansing		Sept. 14-16
Genesee Co	Flint		Oct. 4- 7
Grand Traverse Union	Traverse City		Oct. 5- 6
Hillsdale Co	Hillsdale		Oct. 4- 7
Livingston Co	Howell		Oct. 4- 7
Lapeer Co	Lapeer		Sept. 28-30
Leelenaw Co	Glen Arbor		— —
Marquette Co	Montello		Sept. 21-22
Oakland Co	Pontiac		Sept. 28-30
Sanilac Co	Lexington		Oct. 12-14
Tuscola Co	Watrousville		Sept. 28-30

INDIANA.

Allen Co	Fort Wayne		Sept. 20-24
Boone Co	Lebanon		Oct. 11-15
Bridgeton	Parke Co	Aug. 29,	Sept. 2
Cambridge City District(10 Counties)			Oct. 11-15
Dearborn Co	Lawrenceburg		Sept. 12-17
Delaware Co	Muncie		Sept. 23-26
Edinburg	Johnson Co		Sept. 27-Oct. 1
Fayette Co	Connersville		Sept. 6-10
Fountain and Warren	Attica		Sept. 13-17
Grand Prairie	Pine Village		Sept. 11-17
Grant Co	Marion		Sept. 14-17
Gibson Co	Princeton		Oct. 11-15
Hamilton Co	Cicero		Sept. 27-30
Hancock	Greenfield		Sept. 20-23
Harrison Co	Corydon		Sept. 13-16
Hendricks Co	Danville		Sept. 6- 9
Honey Creek	N. London, Howard Co		Sept. 21
Howard Co	Kokomo		Sept. 28
Huntington	Huntington		Sept. 26-29
Indianapolis (local)			Sept. 5-10
Jefferson	North Madison		Sept. 27-30
Jennings Co	N. Vernon		Sept. 22-24
Johnson Co	Franklin		Sept. 20-24
Lake Co	Ross Station		Oct. 6- 8
Laporte	Laporte		Sept. 4- 7
Madison Co	Anderson		Sept. 13-16
Martin Co	—		Oct. 4 —
Monroe Co	Bloomington		Sept. 20-24
Mooresville District	Mooresville		Sept. 27, Oct. 1
Morgan Co	Martinsville		Sept. 13-16
Muncie Co	Muncie		Sept. 13-16
Owen Co	Gosport		Sept. 6-10
Parke Co	Bridgeton	Aug. 27,	Sept. 3
Posey Co	New Harmony		Sept. 13-16
Putnam Co	Green Castle		Sept. 12-17
Randolph Co	Winchester		Sept. 20-23
Richmond	Wayne Co		Sept. 26-30
Rush Co	Rushville		Sept. 13-16
South-eastern Ind	Aurora		Sept. 6- 9
St. Joseph Co	South Bend		Sept. 29, Oct. 1
Sullivan Co	Sullivan		Aug 29, Sept. 3
Switzerland & Ohio Co's	E. Enterprise		Sept. 13-16
Thorntown Union (3 Co's)	Thorntown		Sept. 27, Oct. 1
Tippecanoe Co	Lafayette		Sept. 7-10
Union Joint Stock	Liberty		Sept. 27-30
Union (3 Co's)	Knightstown	Aug. 30.	Sept. 2
Union (4 Co's)	Edinburg		Sept. 27, Oct. 1
Union (Randolph Co)	Union City		Sept. 27-30
Vermillion Co	Newport		Sept. 13-16
Vigo Co	Terre Haute		Sept. 6-10
Wabash Co	Wabash		Sept. 20-23
Warwick Co	Boonville		Oct. 11-15
Wayne Co. Joint Stock	Richmond		Sept. 13-17

ILLINOIS.

Aurora			Sept. 13-16
Atlanta	Logan Co		Sept. 6-10
Boone Co	Bellevidere		Sept. 20-23
Cameron & De Kalb	———		Sept. 20-23
Coles Co	Charleston		Sept. 7-10
Cass Co	Virginia	Aug. 30,	Sept. 1
Carroll Co	Mt. Carroll		S pt. 6- 9
De Kalb Co	Sycamore		Sept. 13-15
Edwards Co	Albion		Sept. 27-29
Edgar Co	Paris		Sept. 13-16
Franklin Co	Benton		Oct. 5- 8
Fulton Co	Canton		Oct. 11-14
Green Co	Carrollton		Sept. 27-30
Grundy Co	Morris		Sept. 14-16
Henry Co	Cambridge	Aug. 30-	Sept. 2
Iroquois Co	Onarga		Sept. 20-24
Jackson Co	Murphysboro		Sept. 6- 9
Jo Daviess Co	Galena		Sept. 27-30
Kane Co	Geneva		Sept. 21-24
Knox Co	Knoxville		Sept. 13-16
Kankakee Co	Momence		Sept. 27-30
La Salle Co	Ottawa		Sept. 6- 9
Lake Co	Libertyville		Sept. 13-16
Livingston Co	Pontiac		Sept. 20-23
Lawrence Co	Lawrenceville		Sept. 28-30
Marion Co	Centralia		Oct. 10-14
McHenry Co	Woodstock		Oct. 5- 7
Marshall Co	Henry		Sept. 7-10
McLean Co	Bloomington		Sept. 13-16
Mechanicsburg Union	Mechanicsburg		Sept. 6-9
Mercer Co	Aledo		Oct. 4- 6
Montgomery Co	Litchfield		Sept. 27 30
Monroe Co	Waterloo		Oct. 12-14
Madison Co	Edwardsville		Sept. 6- 9
Macoupin Co	Carlinville		Sept. 20-23
Ogle Co	Oregon		Sept. 20-23
Peoria Co	Peoria		Sept. 6- 9
Perry Co	Pinckneyville		Sept. 20-23
Piatt Co	Monticello		Oct 6- 7
Putnam	Hennepin		Sept. 22-24
Pekin (Township)	Tazewell Co		Sept. 20-23
Pope Co	Golconda		Oct. 13-15
Pike Co	Pittsfield		Oct. 11-14
Shelby Co	Shelbyville		Sept. 21-26
Schuyler Co	Rushville		Sept. 14-16
Stark Co	Toulon		Sept. 21-23
Saline Co	Harrisburg		Oct. 4- 7
St. Clair Co	Belleville		Sept. 13-16
Tazewell Co	Pekin		Sept. 20-22
Union Association	Centralia		Oct. 10-14
Union Co	Jonesboro		Sept. 14-17
Union Institute	Sandwich, De Kalb Co		Sept. 21-23
Vermillion Co	Catlin		Sept. 20-23
Warren Co	Monmouth		Sept. 20-23
Whiteside Co	Sterling		Sept. 20-23
Winnebago Co	Rockford		Sept. 13-16

IOWA.

Allamakee Co	Waukou		Sept. 20-22
Appanoose Co	Centreville		Sept. 27-29
Belle Plain	Benton Co		Sept. 6- 9
Benton Co	Vinton		Sept. 13-16
Black Hawk Co	Waterloo		Sept. 21-24
Bremer Co	Waverley		Sept. 20-22
Buchanan Co	Independence		— —
Butler Co	Butler Centre		Sept. 27-29
Cass Co	Atlantic		Sept. 28-29
Cedar Co	Tipton		Oct. 26-30
Cedar Valley	Cedar Falls		Sept. 27-29
Central Iowa	Des Moines		Sept. 28-30
Chickasaw Co	New Hampton		— —
Clayton Co	Farmersburg		Sept. 27-29
Clinton Co	Clinton	Aug. 30,	Sept. 2
Crawford Co	Denison		Oct. 7- 8
Dallas Co	Adel		Sept. 22-24
Davis Co	Bloomfield		Sept. 28-30
Des Moines Co	Burlington		Sept. 6- 9
Decatur Co	Leon		Sept. 21-23
Delaware Co	Manchester		Sept. 28-30
Fremont Co	Sidney		— —
Floyd Co	Charles City		Sept. 20-22
Guthrie Co	Guthrie Centre		— —
Harrison & Montana	Little Sioux		Sept. 27-29
Howard Co	Lime Springs Station		Sept. 22-23
Humboldt Co	Dakota		Oct. 5- 6
Henry Co	Mt. Pleasant		Sept. 7- 9
Jasper Co	Newton		Sept. 21-23
Jefferson Co	Fairfield		Oct. 4- 6
Jackson Co	Maquoketa		— —
Johnson Co	Iowa City		Sept. 20-23
Little Sioux Dist	Little Sioux		Sept. 27-29
Louisa Co	Wapello		Sept. 27-29
Lucas Co	Chariton		Sept. 21-23
Lee Co	Fort Madison		Oct. 4- 7
Mechanicsville Dist	Mechanicsville		— —
Mitchell Co	Osage		Sept. 13-16
Mahaska Co	Oskaloosa		Sept. 20-23
Mills Co	Glenwood		Sept. 13-17
Montgomery Co	Red Oak Junction		Sept. 28-30
Poweshiek Co	Malcolm		Sept. 22-23
Potawattomie Co	Council Bluffs		Sept. 20-22
Story Co	Nevada		Sept. 13-15
Scott Co	Davenport		Sept. 5- 9
Tama Co	Tama City		Sept. 21-23
Union	Ackley, Hardin Co		Sept. 21-23
Union Co	Afton		Oct. 5- 7
Van Buren Co	Keosauqua		Sept. 21-23
Washington Co	Washington		Oct. 3- 4
Wapello Co	Ottumwa		Sept. 20-26
Warren	Indianola		Sept. 21-22

MISSOURI.

Andrain Co	Mexico		Sept. 27, Oct. 1
Boone Co	Columbia		Aug. 30, Sept. 4
Boone Co	Sturgeon		Sept. 6-11
Buchanan Co	St. Joseph		Sept. 6
Callaway Co	Fulton		Aug. 30, Sept. 3
Cameron and De Kalb	Cameron		Sept. 20-23
Clay Co	Liberty		Sept. 6- 9
Chariton Co	Keytesville		Oct. 11-15
Cass Co	Harrisonville		Sept. 27, Oct. 1
Cole Co	Jefferson City		Sept. 13-17
Cooper Co	Boonville		Sept. 20-23
Daviess Co	Gallatin		Sept. 27-30

Fulton Co.	Lafayette	Oct. 11-14
Gasconade Co.	Herman	Sept. 13-14
Grundy Co.	Trenton	Oct. 12-14
Johnson Co.	Warrenburg	Sept. 27-30
Jefferson Co.	De Soto	Aug. 30, Sept. 2
La Fayette Co.	Lexington	Oct. 11-15
Lewis Co.	La Grange	Sept. 19-23
Monroe Co.	Paris	Sept. 13-17
Marion Co.	Hannibal	Sept. 26, Oct. 1
Montgomery	Montgomery Co.	Sept. 27, Oct. 1
Montgomery Co.	New Florence	Sept. 27, Oct. 1
North-eastern	Paris	Sept. 13-17
North Missouri.	Salisbury	Sept. 13-17
Pike Co.	Louisiana	Sept. 26, Oct. 1
Randolph Co.	Huntsville	Aug. 31, Sept. 3
St. Louis Co.	St. Louis	Oct. 3- 8
Shelby Co.	Shelbyville	Oct. 10-14
Vernon Co.	Nevada	Oct. 11-15
Warren Co.	Warrenton	Oct. 12-15
Webster Co.	Marshfield	Sept. 27-30
Washington Co.	Potosi	Sept. 20-22

KENTUCKY.

Bourbon Co.	Paris	Sept. 6- 9
Boone Co.	Florence	Aug. 30, Sept. 3
Fayette Co.	Lexington	Sept. 27, Oct. 2
Harrison Co.	Cynthiana	Sept. 13-16
Jeff. Co., & Louisville.	Louisville	Sept. 13-17
Lexington Ag'l & Mech.	Lexington	Sept. 27, Oct. 1
Mason and Bracken	Germantown	Sept. 20
Mercer Co.	Harrodsburgh	Sept. 6- 9
Marion Co.	Lebanon	Aug. 30, Sept. 3
Nelson Co.	Bardstown	Sept. 27, Oct. 1
Ohio Co.	Hartford	Oct. 4
Paducah & McCracken.	Paducah	Oct. 11-14
Shelby Co.	Shelbyville	Aug. 30, Sept. 2
Simpson Co.	Franklin	Sept. 6- 9
Warren Co.	Bowling Green.	Aug. 30, Sept. 2
Washington Co.	Springfield	Sept. 27-30

WISCONSIN.

Beaver Dam.	Dodge Co.	Sept. 22-24
Columbia Co.	Portage	Sept. 21
Dane Co.	Madison	Sept. 20-22
Dodge Co.	Juneau	Sept. 13-15
Fond du Lac Co.	Fond du Lac	Sept. 13-15
Grant Co.	Lancaster	Sept. 14-16
Green Lake Co.	Markesan	Sept. 15-16
Jefferson Co.	Jefferson	Sept. 21-22
Kenosha.	Bristol Station	Sept. 20-21
Lafayette Co.	Lancaster	Sept. 15-17
Northern Wis.	Oshkosh	Oct. 3- 7
Outagamie Co.	Appleton	Sept. 15-17
Richland Co.	Richland Centre	Oct. 6- 7
Ripon	Fond du Lac Co	Sept. 20-22
South-western	Mineral Point	— —
Vernon Co.	Viroqua	Oct. 5- 7
Walworth Co.	Elkhorn	Oct. 4- 6
Waupun	Fond du Lac Co.	Sept. 14-16
Wisconsin Valley	Black Earth	Sept. — —

MINNESOTA.

Olmstead Co.	Rochester	Sept. 21-22
Fillmore & Mower Co's.	St. Charles	Sept. 28-29
Blue Earth Co.	Garden City	Sept. 14-16

NEBRASKA.

Douglas Co.	Omaha	Sept. 13-15

KANSAS.

Anderson Co.	Garnet	Oct. 5- 7
Doniphan Co.	Troy	Sept. 14-17
Franklin Co.	Ottawa	Sept. 14-17
Leavenworth Co.	Leavenworth	Sept. 13-16
Jackson Co.	Holton	Sept. 15-17
Jefferson Co.	Oskaloosa	Sept. 5- 7
Northern Kansas.	Atchison	Oct. 5- 7

TENNESSEE.

Haywood Co.	Brownsville	Oct. 18-22
Robertson Co.	Springfield	Oct. 14-17
Shelby Co.	Memphis	Oct. 18-21

GEORGIA.

Putnam Co.	Eatonton	Oct. 12-14
Muscogee Co.	Columbus	Nov. 1- 5

ALABAMA.

Cent'l Ag'l & Mech'l.	Selma	Nov. 8-11
Lauderdale Co.	Florence	— —

MISSISSIPPI.

Attala Co.	Pilgrim's Rest Church	Nov. 9-
Jefferson Co.	Fayette	Oct. 18-21

VIRGINIA.

Lynchburg	———	Oct. 11-14
Shenandoah Valley	———	— —
South-west Va.	Wytheville	Oct. 4- 7

OREGON.

Columbia District.	Dalles, Wasco Co.	Sept. 28, Oct. 1

TEXAS.

Washington Co.	Brenham	Oct. 11

CALIFORNIA.

St. Joaquin.	Stockton	Sept. 20-23

DOMINION OF CANADA, ETC.

Ottawa, Ont.		Sept. 21-28
E. Middlesex & London, London, Ont.		Sept. 27-29
Prince Edward's Island, Summerside.		Oct. 7- 8
Yarmouth, Nova Scotia.		Oct. 6

Attending the Fairs.—One of the greatest swindles is the "Dining-Hall" at a fair. Large prices are charged for very poor food, and the crowd and discomfort are intolerable. One by providing a lunch beforehand can be sure of something clean and eatable, and save not only money but a great amount of annoyance.

WAR.

War! War! War!

A "Thirty Year's War."

The people of Europe are at war with each other—for What? *We* have been fighting for a long time, and we are soon to enter upon our **Thirtieth Year of Unceasing War!** We are making war upon Ignorance; war upon Poor Crops; war upon Unprofitable Labor; war upon Poor Housekeeping; war upon "all work and no play," among young people as well as old; war upon *Humbugs:* etc., etc., etc. We are fighting for the best interests of all who till the soil in large or small quantities; for the cheapest and best in-door and out-door adornment of Country, Village, and City Homes; for lightening the cares and labors of the Housekeeper; for the instruction and amusement of the Children; and, having been always victorious thus far, we shall enter upon our **Thirtieth Annual Campaign** with great confidence, and courage, and determination, and come out victorious at the end of another year. We invite **NEW RECRUITS** to our grand, victorious army of Readers—by the thousand, by the ten thousand, and by the hundred thousand. A **"BOUNTY"** is offered to the first Recruits on page 328.

containing a great variety of Items, including many good Hints and Suggestions which we throw into smaller type and condensed form, for want of space elsewhere.

Postage 12 Cents a Year in Advance.—The postage on the *American Agriculturist* anywhere in the United States and Territories, *paid in advance*, is 3 cents a quarter, 12 cents a year. If not paid in advance, twice these rates may be charged.

How to Remit:—Checks on New York Banks or Bankers are best for large sums; made payable to the order of **Orange Judd & Co.**

Post-Office Money Orders may be obtained at nearly every county-seat, in all the cities, and in many of the large towns. We consider them perfectly safe, and the best means of remitting fifty dollars or less, as thousands have been sent to us *without any loss.*

Registered Letters, under the new system, which went into effect Oct. 1, 1868, are a very safe means of sending small sums of money where P. O. Money Orders cannot be easily obtained. *Observe*, the *Registry fee*, as well as postage, *must be paid in stamps* at the office where the letter is mailed, or it will be liable to be sent to the Dead-Letter Office. *Buy and affix the stamps both for postage and registry, put in the money, and seal the letter in the presence of the postmaster, and take his receipt for it.* Letters thus sent to us are at our risk.

Clubs can at any time be increased by remitting for each addition the price paid by the original members, if the subscriptions all date at the same starting point. The back numbers will, of course, be sent to added names.

Bound Copies of Volume XXVIII (1869) are now ready. Price, $2, at our office; or $2.50 each, if sent by mail. Any of the previous twelve volumes (16 to 28) will be forwarded at the same price. Sets of numbers sent to our office will be neatly bound in our regular style at 75 cents per vol., (50 cents extra, if returned by mail.) Missing numbers supplied at 12 cents each.

Three Months' Subscription, Free, is offered on page 328, to new subscribers received this month. The publishers desire to secure the attention of as many new readers as possible, before the beginning of the new volume. Each new reader induced to come in now, by means of this extra offer, will be likely to enlist still others for the next volume, so that the expense will, in part at least, be made up. The paper ought to have at least a quarter of a million subscribers to begin for the next volume.

Please Notice.—Letters asking advice whether one shall buy a farm here or there, whether one is likely to do well in this or that speculation, whether one had better pull up stakes and move to another place, and letters asking us to find employment for the writers, have become so numerous that we must make this general answer. We will ask each of these persons who write for advice as to whether they shall engage in this or that pursuit, make this or that move, buy or sell this or that property, what answer he would make if a perfect stranger applied to him. Would he not say, "I must know the man and all about his antecedents and present circumstances before I can make an opinion."—It may seem unkind to refuse advice in these cases, but it is far better than to advise blindly. Letters asking us for employment are a waste of paper and postage. We have a hundred applications from personal friends for every vacancy that occurs or is likely to occur in our own establishment—and we cannot look up places outside.

A Grape Exhibition in New York.—Messrs. B. K. Bliss & Sons propose holding an exhibition of Grapes late in September. Liberal prizes will be offered, which will be awarded by a committee of pomologists from different parts of the country. Circulars giving full particulars may be had by applying to B. K. Bliss & Sons, 23 Park Place.

Newspaper Enterprise.—The resources of a large newspaper were never more strikingly shown than by the N. Y. Tribune at the breaking out of the war in Europe. The declaration of hostilities came with great suddenness, but it found The Tribune prepared with a correspondent at every important point upon each side of the line. The war news of this paper for completeness and promptness has been a marvel; and we trust the publishers have been rewarded for their enterprise.

Eastern and Western Agricultural Papers.—The Western Farmer, Madison, Wis., in a well considered article, enters its protest against the course of the Western agricultural papers towards those published at the East. The only feeling that we have in the matter is one of regret, when we see editors whom we would like to respect, engaged in a wholesale crusade against Eastern papers. The Western Farmer sensibly says: "Making a personal case of the matter we say that if any Western farmer thinks an Eastern paper will be more useful to him than ours, we wish him to take it by all means. A good Eastern agricultural paper is of much value to an intelligent farmer, even in the Northwest, and if such a farmer, after a fair trial of the two, concludes that a paper designed more especially for the East will suit him better than ours, designed especially for the West, we will certainly not discourage his taking the paper of his choice."—We may add that the Western Farmer gives emphasis to the above by making an able and well-conducted paper.

Wheat and Corn in Virginia.—A correspondent puts the whole story in a nutshell, thus: Some scratch in wheat in October or November, and make sorry crops, others here plow early, and will sow in *September* and make 40 bushels per acre. Some cornfields contending with grass, briers and bushes, yield from 5 to 15 bushels per acre, other fields upon which nothing but the corn is suffered to grow, will yield 40 to 60 bushels. Few will learn the great advantage of thorough cultivation.

Cutting and Curing Tobacco.—No plant is so sensitive to frost, or more thoroughly ruined by freezing. Saws, hatchets, and corn-knives, are all advocated for cutting up tobacco. A good, heavy corn-knife is handy enough. Tobacco should not be handled until it is wilted. Lay the plant down and turn it once, after one side has felt the sun for an hour or more. Handle by the buts with great care. The plants must be immediately suspended, not close enough to crowd each other, and so close that the room shall be well economized. They must

hang in airy sheds secure from rains, and where there will be a free circulation of air. If exposed to the wind, they will be broken, and the tobacco is better for not *drying* too quick. It needs to *cure* slowly and uniformly.—See our pamphlet on Tobacco Culture, and an article on Joseph Reader's method in the *Agriculturist* for March, 1864, in regard to the most approved ways of hanging tobacco in the drying sheds.

Humbug Medical Universities and Hospitals.—We have frequent inquiries about the concern that advertises itself as the New York Medical University, and here is a letter from one who has been swindled by an "Examining Agent" of the "Union Combination Hospital," and asking if there is such a hospital in New York. New York hospitals do not send out "examining," or any other agents, and New York Universities do not advertise cures or medicines. We might print in large letters on every page that every one who advertises medicines to cure this or that disease, or promises a cure in any case, is a quack and a humbug; and yet there would be some who would write to ask if such a one was not an exception. Have nothing to do with the whole crew. The more they pretend as to their abilities the more dangerous they are. We do not know that there is any law to prevent one man calling himself a "University," a "Hospital," or a funeral. As to this "New York Medical University," it is difficult to see how any one can read its advertisements and suppose for a moment that it was a University in any proper or legitimate sense of the term.

Harper's Magazine.—This standard monthly not only keeps up with its former reputation—but is has introduced some new features, the most notable of which is the "Editor's Scientific Record." The attempts at giving scientific items in popular papers are generally ridiculous failures. This in Harper's is a marked exception, and is evidently made up by some one who understands what he is about.

Tinned Roofs.—W. A. Staples, Amherst Co., Va. You can buy tinned nails with which to fasten the tin upon your roof, and they will be much better than copper—which, indeed, would be the worst you could use. Any tinman can tin them for you in case they are not to be had ready covered.

"Upland Cranberry."—Seth Gordon, Guernsey Co., O. We have many times stated that there is not, to our knowledge, any variety of cranberry that can be planted upon dry soil with any probability of success. We know that some dealers advertise the plants, but we will go a long journey to see an acre, or even a square rod in profitable bearing. Who will show it to us?

Alders and Caraway.—"F. E. D.," St. Johns, N. B. Alders are best cut when in their fullest vigor, but we doubt if one cutting at any particular time will kill them. Caraway is an unusual weed in pastures. It is a biennial, and if not allowed to go to seed, would die out, if no more seed were brought upon the land.

Grass for Florida.—G. Carlton. The Bermuda Grass—*Cynodon dactylon*, will succeed on "poor and sandy soils." It does not grow from seed, but from sets. The Lespedeza or "Japan Pea," is worth trying as a pasture plant.

Bark-Louse.—D. S. Prescott. The specimen sent is the Oyster-shell Bark-louse, which we have often described. The reason you did not recognize it is because it is in its young state. The insects have recently fixed themselves, and the scale is just beginning to grow upon them. Eggs will appear later in the season.

Raw Tomatoes.—Mrs. "W. A. B.," writes: "Tomatoes to be eaten raw, are much nicer if peeled without scalding; if properly ripened, that can be accomplished with very little trouble. As an accompaniment for bread and butter, nothing can be nicer than tomatoes served like strawberries, with white sugar and sweet cream, without pepper, salt, or vinegar; have the tomatoes fresh and cool, and nicely peeled and sliced."

Plants Named.—Mrs. S. L. Bowman, the Gingko, *Salisburia adiantifolia*, a fine ornamental tree from Japan....Mrs. "A. C. W.," Milwaukee, Wis. An old greenhouse shrub, formerly called *Achania Malvaviscus*, but properly is *Malvaviscus arborea*....K. S. Wright. The flower is *Gilia coronopifolia*, Standing Cypress, or Cypress Gilia; the leaf is that of *Saxifraga sarmentosa*, popularly known as Wandering Jew, Strawberry Geranium, etc....H. Steel, Port Deposit, Md. Not a thistle, but something worse—the "Horse-nettle," *Solanum Carolinense*. It is one of the vilest weeds that ever grew, and the only way is to keep cutting it off as fast as it sprouts....F. D. Hunter, Poughkeepsie. The Double Sneezewort, *Achillea Ptarmica*, an excellent white flower, but it will spread so!....Mrs. "E. C. H." The Virginia Creeper, *Ampelopsis quinquefolia*, and not at all poisonous. The leaf has *five* divisions, while those of the Poison Ivy, for which it was mistaken, have *three*.... L. Ballou, Winchendon, Mass. Fumitory, *Fumaria officinalis*, and found as a weed in old gardens all over the world. It was formerly cultivated as a medicinal plant, but is just now out of fashion....S. Carlton, Slatersville, R. I., No. 1, Bastard Toad-flax, *Comandra umbellata*.—No. 2. Dwarf Ginseng, *Aralia quinquefolia*. No. 3, New Jersey Tea, *Ceanothus Americanus*. No. 4, American Hellebore, *Veratrum viride*. No. 5, Enchanter's Nightshade, *Circæa Lutetiana*. No. 6. Water Pennywort, *Hydrocotyle Americana*. No. 7, apparently the leaves of Gill, *Nepeta Glechoma*....Box sent by J. E. Haller crushed in the mail and plants lost.

Sumach.—Several inquire about preparing Sumach for market. We have nothing to add to what has already been published. The leaves and leaf-stalks, and not the berries, are used. They are gathered at any time from July until frost, thoroughly cured under cover, and ground and bolted for market. We will thank any one familiar with the process to give us a detailed account of the manner of grinding and packing.

Canning Sweet Corn.—We have frequently stated that there were difficulties in the way of canning sweet corn in families, but inquiries continue to come in relation to it. Green corn is put up in large quantities by the Oneida Community; their process as published in the "Circular" last year is essentially as follows: The corn is boiled for 20 minutes; it is then cut from the cob and placed in tin cans. A boiling-hot syrup, made of one pound each of sugar and salt to eight gallons of water, is poured into the cans to completely fill all the interstices among the corn. The cans are then soldered up and are ready for boiling in a solution of chloride of calcium, a vast product of the salt works. The chloride of calcium bath is used because its boiling point is much higher than that of water. It is used of a strength that boils at 240°. The sealed cans are placed upon a rack and lowered into the solution; high pressure steam is let into a coiled tube at the bottom of the kettle and the cans are kept at a temperature of 240° for 45 minutes. The cans, when removed, are washed off, and when cooled are ready to label and pack.

Crimson Clover—Vetch.—"W. C. B.," New Hope, Bucks Co., Pa., writes: "I see in the August *Agriculturist* an account of the Crimson Clover. Will it make good hay the first year? Does it grow strong, stiff stalks? I want something to sow on corn stubbles next spring in place of oats, to get some hay off next year." *Ans.*—We do not think the Crimson Clover would prove satisfactory. If the land is rich, Vetch or Tares would do well either alone or mixed with oats and make capital hay. The seed is to be had of our large seedsmen.

Green Corn.—Norah N. says, cut from the cob and boil in so little water as to be dry when done; add a cupful of sweet cream and a lump of butter.

Transactions of the N. Y. State Agricultural Society for 1868.—With a moderation which becomes a dignified body, the N. Y. State Society presents a record of what it did two years ago, which will probably be interesting to antiquarians. For the rest, it contains a Report on "New American Grapes," which the Society never should have printed, two articles from the Journal of the Royal Agricultural Society (England!), and a paper on Salt by Hon. Geo. Geddes, which if we mistake not, has already appeared elsewhere. We hope that the Society will incubate three years over its report for 1869, and we may then have the volume quite made up of foreign articles.

A Lamp Screw Loose.—"S. J. W." asks how he shall replace a screw that has become detached from his lamp. The screw caps are cemented on by means of plaster of Paris (calcined plaster). Mix the plaster with water to the consistence of thick cream, and cement on the cap. It will set in a few minutes, and when dry will be firmly fixed. Both the cap and the lamp should be free from grease.

Eucalyptus.—"A Subscriber," Putnam Co., Fla. We know of no one who has these trees at the East. They have been planted to a considerable extent in California, and had you signed your name to your letter—as every person who writes should—we should have answered by mail.

Pruning Evergreen Hedges.—J. Freek. Prune this fall, before hard frosts.

The Aldine Press is a monthly journal devoted to literature and the fine arts. In point of mechanical execution, paper, type and engravings, it is magnificent. Those who are interested in the progress of wood engraving will find some remarkable examples in this journal. It has recently presented its readers with several illustrations from the *American Agriculturist*, as specimens of excellence in the art of engraving. The paper and printing that we are obliged to use upon our large edition and at our cheap rates, and especially the rapid rate at which we must print the immense number of copies, on power presses, does not allow the real beauty of our engravings to be shown; but on the thick tinted paper, and with the exquisite printing of the Aldine Press, they come out in all their true excellence. We have mentioned only the mechanical portion of the journal, the literary portion is by some of the best writers of the day.

Sundry Humbugs.—To give an idea of the extent of the operations of swindlers, as well as to furnish a record for ready reference by our readers, we give below a list of a portion of the names referred to in the present volume of this paper. It will be understood from our previous remarks, that a large number of these names are assumed by a small number of operators. As fast as old names become odious or sufficiently known to the P. O. Authorities or others to have their letters stopped, or when exposed in these columns, they take up new names, sometimes using their old circulars with a change of address, and sometimes adopting a new scheme. So, also, one man often runs several schemes, or the same scheme under many names. We add to each name a figure showing what number of this volume contains the name, as 1 for Jan., 2 for Feb., 3 for March, etc. Here is the partial list: Armstrong, 3; The Adder, 3; Arnold, 4, 6; Ames, 4; Andrews, 5; Alvord, 6; Banks, 4th St., 2; Banking House, Broadway, 6; Baby advertised for, 4; Badeau, 5; J. M. Blake, 6; C. O. D., 7; Clinton, 1; Clement, 1, 2; Children's Aid Soc., 6; Churches, 3; Clifford & Righton, 3; Crandell, 5; Colgate, 5, 7; Carter & Co., 6; Cancer Doctors, 6; Collins, 7; California Library Lottery, 7; Douglas, 6; Dollar Sales, 1; Doctors, 2, 3, 5, 6, 8; Daily & Co., 4, 6, 7; Dodd & Co., 4; Dexter, 7; J. A. Dodge, 9; Electrical Doctors, 5; Envelope Game, 5; Elmore, 5; Ellerton, 6, 7; Employment, 6, 7; Express Parcel Swindle, 8; S. Fox, 8; J. Fuller, 8; Ferguson, 8, 9; Fire Arms, Guns, Pistols, etc., 3, 5; Gift Enterprise, 4, 5; Godfrey, 4; Gambling Cards, 7; Harris & Co., 1, 2, 7; Havana Lottery, 2, 9; Harriot, 4; Geo. R. Hart, 9; Hitchcock, 4, 6; Hammond, 6; Howard Association, 7, 8; R. H. Holland, 8; Inman, 3; J. I. Hamilton, 8; Jones, 4, 6, 8; Jeweler's Association, 5; P. Jackson, 8; Knitting Machine, 7; Lotz & Co., 1, 2; Lands, Cheap, 5; Lottery Prizes, 2, 5, 7, 9; Life Insurance, 7; W. B. Logan, 8; Michelin & Co., 5; Mocking Bird, 4; Music Boxes, 1, 3, 5; Meredith, Halstead & Co., 3; Martine, 4, 5; Morgan, 4; Morrow, 6; W. H. Morris, S. 9; W. D. Miles, 9; Newspaper Subscribers, 4; Oils, cheap, 2, 4, 6, 7; Ogden, 3; Oroide Watches, etc., 5, 6; Porter & Co., 1; F. Porter, 3; Photographs, 2, 4, 5, 7; Post-masters, 2; Private Diseases, 2, 3, 5; Purchasing Agency, 3; Pistols, 3, 5; C. C. Perry, 7; T. W. Pierce, 8; Palmer, 8; "Receivers," 1, 2, 3, 4, 5, 6; Reid & Co., 4; Recipe Sellers, 5, 7, 9; "Regenerator," 8; Steam Engines, 2, 3; Sewing Machines, cheap, 3, 4, 6; I. W. Smith & Co., 5; Seeley, M. D., 5; Silver Plating, 6; Stockton, 7, 8; D. B. Stack, 7; Taylor, 2; Trivelio, 3; A. Smith, 8; H. Stewart, 8; Vinegar Recipe, 5, 9; Wogan & Co., 1, and in *many* other papers; Waters & Co., 1, 2; Wiggins, 1, 8; Weston, Graff & Co., 2; Rev. Edward Wilson, 3; Mrs. Williams, 5; Watches, Oroide, 5; Watch Indicators, 5, 7; Webb & Co., 6; Wagner, 7; R. S. Wood, 8; R. F. Wood, 7; W. H. Wood, 7, 8; etc., etc. The above partial list contains references to some **170** swindlers and swindling operations, and indicates the wide extent of the nuisance we are combatting. Those receiving circulars, or having them on hand, can, by examining the above list, judge whether any scheme is a new one, and whether it is necessary to send it to us. . . Our "Humbug Parcel" this month contains many of the schemes indicated above as having been already shown up by us. Here is the "manner" of one: J. A. Dodge writes, on manifold paper, to a large number of persons, that he has possession of the original plates stolen from the U. S. Treasury, from which he is printing 1, 2, and 5 dollar bills, which are absolutely perfect, etc., and says he has flooded this city, and wishes now to circulate them elsewhere. He offers to sell $200 worth for $20—$10 C. O. D., etc., and so on with a lot of plausible stuff. He gives his address 688 Broadway, and encloses a Bill-head of "W. H. Morris & Co., Importers and Manufacturers of Laces, White Goods, Notions, etc., Clifton Buildings, Broadway, New York," as a blind. In the Philadelphia "*Public Ledger*," of July 26th, and on other days, appears an advertisement thus:

"**$1,000** A DAY CAN BE MADE BY PARTIES that are up to snuff without interfering with their other business. Address W. D. MILES, 688 Broadway, New York." 11$

the same address as that of J. A. Dodge above. This illustration gives one of the modes of operation, and shows how much reliance is to be placed upon these "$1,000 a day, or year," advertisements..... An ingenious swindler prints off some very plausible, well executed lithographic letters, and scatters them at the West, signing to different lots of the same very "confidential" letter one of the following names: John F. Hamilton, 212 Broadway, and 73 Nassau st.—Rob't. H. Holland, 142 Fulton st.—Thos. W. Pierce, 89 Nassau st.—Edward Palmer, jr., Bergen Point, N. J.—Wm. B. Logan, 15 Dutch st.—Wm. J. Ferguson, 194 Broadway, etc., etc. .....Adam Smith is in the same line of swindling. He calls himself "Printer and Stationer, 210 Broadway, N. Y."—a favorite address with humbugs. This Adam wont take any letters nor money from the Post-Office—it must always come by express——for the good reason that he can't get letters.....Many inquiries come to us respecting a Connecticut vinegar recipe, for which $5.00 is asked. It goes largely on the recommendation of two College Professors, whose names we are sorry to see on any business circular, unless necessary to the introduction of something of the highest utility and importance to the country. Their names were doubtless given in this instance without considering how widely they were to be used, and for what purpose. We hope they will personally test the process, carefully and accurately, and in comparison with the old processes, and let us know the result. Cider, wine, and sundry other substances are converted into vinegar by exposure to air. The change is hastened, on a large or small scale, by letting the cider, etc., trickle slowly through barrels of shavings, with many holes in the barrels to admit air freely. It is a simple easy process, entirely effective, and is practised on a large scale in some factories, especially in Europe. The new process we understand to be an arrangement of inclined shelves to secure a similar result. Of its utility, especially to the masses who are led to pay $5 each, we have no definite testimony from uninterested, intelligent parties who have given it a thorough, practical and comparative trial.....Henry P. Jones & Co. are the most generous "gift enterprise" men we have ever heard of. They offer to send a $150 watch to a man for simply "accepting" an agency, and they say nothing about any money in advance, or any "C.O.D." If there is not a very large cat in that meal tub, we agree to not repeat what we now *affirm*, that *all* "gift enterprises," this one included, from beginning to end, from top to bottom, from side to side, all through and all round, are neither more nor less than lotteries, and that all lotteries are swindles, bad in their tendency and results upon every participator—the fortunate ones, so-called, (when there *are* any), as well as the unfortunate so-called. H. H. Wodsworth & Co., also of Broadway, N. Y., appear to be just like Jones & Co..... We would strongly object to the "annexation" of Cuba, if compelled to take the "Havana Lotteries" with it.—Jas. L. Budd, of Broadway, N. Y., is not only interfering with Taylor, he of Wall st., Havana Lottery "authorized agency," but he is making either himself or the lottery ridiculous. In a neatly litographed letter, he literally implores lots of people to send him $10 each, for tickets, promising *each one* to almost certainly select tickets that will draw $10,000. Now the lottery must be very unfair, if any one man can get so many $10,000 tickets as Budd has promised to his $10 customers. 2d, Budd is a big fool, if he knows what tickets will draw $10,000, in that he don't buy them himself or by proxy, and not be sending round the country to pick up $10 at a time.—Query. Has Mr. Budd any genuine Havana tickets at all? Query 2d. Does any one know of any lottery that gives its customers a fair, fully equitable chance? We don't, though we have carefully studied out a good many, for the purposes of this column.....To S. W., and others: You will find the recipe sellers attended to on page 246 (July No.) New Hampshire and Maine have an undue share of these operators .....Mr. W. E. Hamlin, P. M. of Sterling, Wayne Co., Pa., gives us full details of the operations of a medium sized, wooden-legged man, that came into that town, and by professing to be agent of a Dental Association, and other subterfuges, got many dollars out of the people in advance for *promised* work, spoiled many teeth, and left without paying board, horse keep, or even his washer-woman. We have not room for more particulars. No real dental association sends out agents. Look out for this chap elsewhere. If he appears anywhere, get him into the hands of the Sterling, Pa., people.....John F. Boyd *offers* to send Three "American Patented Watches" for $5, or $3 C.O.D., if $1 be sent in advance. He shows his cloven foot in telling you that these watches "are just the thing" to barter or "swop" with, etc. The $1 in advance is what *he* is after..... Look out for Pocket Microscopes until you know what you are buying. Thousands of bits of globular glass, set in a scrap of paste-board, have been sold at $1 to $2 each, to persons at a distance sending money by mail, and having no redress. They can be made at a profit for 2 cents each, and are of little account—will do for a plaything.

TELL ALL YOUR NEIGHBORS THAT

The Publishers of the American Agriculturist, for Sept. only, Offer

3 Months Subscription for 0,

As follows: Every **New** *Subscriber for the* **Thirtieth** *Annual Volume (all of* **1871**), *whose subscription is received during this month of September, will be presented with the paper for* October, November, *and* December **without Charge.**

N.B.—Subscribers too distant to respond to this before Oct. 1, will be allowed extra time to send in the names.

THIS IS ONLY

10 Cents a Month!	**120 Cents a Year!**
or	or
8⅓ Cents a Month!	**100 Cents a Year!**
or	or
8 Cents a Month!	**96 Cents a Year!**
or	or
6⅔ Cents a Month!	**80 Cents a Year!**

Explanations.

First: Single subscribers pay $1.50 per volume; but a **new** subscriber sent in *now* for 1871, gets the paper **15** months, which is at the rate of only $1.20 a year, or 10 cents a month!

Second: Four subscribers sent together pay $5 per volume; but four **new** subscribers sent in *now* for 1871, get the paper **15** months for the same price, which is at the rate of only $1 a year, or 8⅓ cents per month for each.

Third: Ten subscribers sent together, pay $12 per volume; but ten **new** subscribers sent in *now* for 1871, get the paper **15** months for the same price, which is at the rate of only 96 cents a year, or 8 cents per month for each.

Fourth; Twenty subscribers, sent together, pay $20 per volume; but twenty **new** subscribers sent in *now* for 1871, get the paper **15** months for the same price, which is only 80 cts. a year, or 6⅔ cents a month for each!

Can any thing be Cheaper? Any one will see that these prices scarcely cover the cost of the printing paper; but no matter about that. We invite all the world and the rest of mankind to come forward and avail themselves of these offers. We are able to make them good, and will do so, and give a paper not only as large and as good as now, but just as much better as human skill, and effort, and labor, and care, can make.

The Flora of Colorado.—N. C. Meeker writes to the N. Y. Tribune from the new colony of Greeley, Colorado: "The flora of this and of the mountain region is varied and rich, and it is almost wholly new. Many of the common plants growing by the roadside are surprising for variety and rich coloring, and of these there are constant successions. I am entirely convinced that a florist would do a grand business in cultivating and improving the finest sorts for our Eastern market, and that they will be received with a wonder equal to that with which many varieties, now well established, were received from over sea."—All of this means that the plants are new to N. C. M. We should be delighted to see some of these "wholly new" plants, and will give $5 for a dried specimen of any species that has not been heretofore described. We doubt if there is a single plant in the whole vicinity worth cultivating, that is not in the botanical gardens of England, France, Prussia, and Switzerland. Our friend M. is a capital writer, but he appears to the best advantage when upon topics of which he has some knowledge.

The Naturalist's Guide, by C. J. Maynard. Boston: Fields, Osgood & Co. We are frequently asked to give directions for stuffing birds and preparing other specimens. The preparation of birds is a matter of so much detail, that it could not be satisfactorily presented in the limited space we could devote to it, and we are glad that we can refer inquirers to a work like the present, which is, perhaps, as complete as any upon the subject. Each operator soon learns ways of his own, and the chief use of instruction is to start him right. To properly prepare a bird skin, and mount it, is a work of art, and requires not only careful manipulation, but an eye for form and proportion. These, no book can impart. The manual of Mr. Maynard will, however, be of great aid in the mechanical portion of the work. Price, by mail, $2.

The Agriculturist Strawberry.—We have no possible interest in the strawberry called the Agriculturist, beyond the satisfaction we feel in having widely disseminated a variety so generally successful and of such good quality. We are well aware that there are higher flavored berries, but take it for all its qualities, its introduction was of great benefit—at least we used to think so. Now a "Daniel has come to judgement," and we get opinions on the strawberry question which, whatever merit they may lack, have at least the rare one of novelty. The editor of the Horticulturist is the "very Daniel"—he says of the Agriculturist in his August No.: "Flesh soft, and taste from sweet to *nauseous*." The value of such an opinion can be best shown by another quotation from the same article: "*Rippowam*—resembles the Agriculturist so closely, it does not need any especial description." Mr. Horticulturist, you can go to the head of the class in pomology. The Rippowam and Agriculturist are as much alike as Lennig's White and Wilson.

Black Currants.—"P. H. B.," Glasco, N. Y., was induced by a nursery agent to buy 200 plants of Black Naples Currant. They have come into bearing, and he writes: "The fruit has a rank, nupleasant flavor and smell, so much so that my family wont touch them. Can you give me any information as to their use, etc.? Are they good for anything, or am I 'sold' on them?"—You ordered black currants, and according to the description, received them; so there was no "sell," as far as that goes. The lesson, not to invest in fruit that you know nothing about, is cheap at the price of 200 currant bushes. As to the currant itself, it is disagreeable to many, but much liked by some, especially the English, who make it into jam and jelly. The unpleasant taste, to a great extent, disappears in the preserve. The fruit is usually in our city markets.

Dwarf Peaches.—We made the statement that the dwarf peaches were worked upon the stock of the common peach. A Tennessee correspondent thinks that as the quince stock dwarfs the pear, and the Paradise stock dwarfs the apple, the free growing peach ought to break up the habit of the dwarf peach when budded upon it. It is not "a rule that works both ways." Individual peculiarities are perpetuated by budding and grafting, and it is no more singular that the dwarf habit should be perpetuated in this way, than that a weeping tree or a curled or cut-leaved one should be grafted on one of the ordinary kind without reverting to the normal condition.

The Salway Peach.—This variety was noticed in our Horticultural Annual for last year. It was first introduced by the late Isaac Pullen, of Hightstown, N. J., and we were pleased to receive a few weeks ago from his son and successor, Mr. Thomas J. Pullen, some specimens of the fruit from trees that had been started in the orchard house and set out of doors as soon as the weather became settled. We think we never

saw anything more beautiful. Mr. Pullen says: "I think the Salway will prove a valuable variety for more southern latitudes. I sold a large number of these trees to planters in Delaware and Maryland last year, so that its merits as a market variety will soon be tested. The tree is very hardy and productive." Mr. Fulton in his Peach Culture, speaks of it as likely to prove of great value as a late freestone. The following is Mr. P's description: SALWAY. — Large roundish-oblate, distinct suture, with point at apex. Skin bright yellow, beautifully mottled with red spots. Flesh deep yellow, red at stone, and very good. Tree hardy, profuse bearer. Flowers, small. Glands reniform. Late, ripening after the Smock.

Mammoth Cluster Raspberry.—S. D. Comfort, writes that he has the Doolittle, Miami, and Mammoth Cluster, growing side by side, and that any one can see they are distinct. There are two distinct varieties that have been called Miami, and it is claimed by such authorities as Chas. Downing, that the Large Miami, or McCormick, is identical with that recently named Mammoth Cluster. This is also the decision of the committee of the Am. Pomological Society.

The Kentucky Strawberry. — We have not yet seen the fruit of this variety, our vines were set out only this spring and have not yet borne. It is a seedling by Mr. J. S. Downer, of Fairview, Ky., to whom we are indebted for the Downer's Prolific, and Charles Downing. The Kentucky is said to be the latest variety in cultivation. Mr. A. D. Webb, Vice-President of the Ky. State Hort'l Society, in an article published in the Farmer's Home Journal, says: "I certainly regard the Kentucky as the handsomest and most attractive berry I ever saw of the light color variety, good flavor, and very large size. There is certainly a debt of gratitude due Mr. J. S. Downer for originating and introducing the Charles Downing and Kentucky, both of which possess superior qualities and are decided acquisitions."

Early Apples.—R. H. Martin, Sussex Co., Del., sends a crate of apples known as Ben Whitenen. It is probably a local variety. Mr. M. says that it is fit for cooking by July 1st. It is a fair fruit for eating, and no doubt valuable for home use, but neither its size nor appearance would commend it for market. Among the early varieties, Summer Queen, Sour Bough, Red Astrachan, and Early Bough, are the best market sorts. Some New Jersey growers consider the Summer Queen the most profitable variety.

Drying Fruit.—When much fruit is dried, it is necessary to have a house for the purpose. Small quantities should be so arranged as to be placed near the kitchen fire when taken in at night or during stormy days. Those who have hot-bed sash, can easily arrange a drying apparatus which will dry rapidly and at the same time keep off insects. A hot-bed frame with a bottom to it, and raised above the ground, makes a capital drying box. The sash should be elevated at one end to allow the moisture to pass off, covering the opening with netting.

Pear-Trees and Hot Weather.—S. Wood, Jr., writes that during the heats of July, two of Manning's Elizabeth pear-trees, out of a collection of thirty varieties, had their leaves crisped as if burned by fire, and asks the cause. If some of his trees had been winter-killed, he would have said they were "tender," meaning not able to withstand excessive cold. Trees are also tender to excessive heat, hence many varieties can not be grown in the Southern States, but we hear much less of tenderness in this direction than in the other.

Peach-trees in Baskets.—Mr. A. C. Chamberlain, of Brooklyn, presented us with a four-year-old peach-tree grown in a wire basket a foot across. It had a half-dozen, well-grown, ripe peaches upon it. The basket is filled with moss, through which is diffused some fertilizer, the composition of which Mr. C. keeps secret. As a novelty, it will please the curious, but we cannot see any advantage over the well-known way of growing the peaches in pots.

Pineapple Fibre.—Nora N. This is a fabric made from the fibres of the leaves of pineapples and related plants of the same family.

Wild Wistaria.—Nora N. There is a wild Wistaria, but it has blue and not maroon-colored flowers. You probably have in view the *Apios tuberosa*, called Wild Bean and Dacotah Potato.

Vines on a Lightning-rod.—A correspondent asks if it is safe to train a honeysuckle upon a lightning-rod. We do not know if she means safe for the rod or for the vine. It cannot in any way interfere with the rod, and as for the vine, that must take the chance of being "struck by lightning," which is proverbial y very small.

Coleuses and Begonias.—"J. G. R.," Griffin, Ga. Both these need a greenhouse temperature of not lower than 60° during the winter. The Coleuses are particularly difficult to keep unless there is the proper heat.

Castor Pomace.—Mrs. W. A. B., Windham Co., Conn., says: Those who use Castor Pomace as a fertilizer should observe caution in handling and using it; if it comes in contact with the eyes, either by rubbing the eyes with the soiled hands, or if the wind blows it into them, it will cause inflammation. It should be kept away from cattle. A valuable cow came near losing her life a short time ago by getting to compost where Castor Pomace was used, repeated doses of melted lard saved her life, but she is permanently injured."

Poisoned Dogs.—"W. B. M.," Lewiston, Idaho, writes that, when living in Texas, he often had hunting dogs poisoned by strychnine that was set for wolves. He always cured the dogs by pouring down their throats as much milk-warm oil, or grease, as their stomachs would hold.

Root Pruning.—"W. T. W." The "practical" part of the operation is very simple. A circular trench is opened to expose the roots, and they are then severed by means of a very sharp spade. The point where there is the most difficulty is, to judge how much to prune. The object is to check the growth of the tree and induce it to form fruit; and while removing too large a share of the roots will cut off too great a supply of nourishment, the removal of too little will defeat the object sought. For young trees, Rivers advises that the trench should be a foot from the tree for every inch of the diameter of the trunk. Thus a tree 3 inches through would have the trench 3 feet from the tree on all sides, making a circle 6 feet in diameter, of which the tree is the center. All the roots outside of this circle are to be cut off. But no fixed rule can be applicable to trees in all conditions, and much must depend upon the judgment of the operator. The work may be done in autumn or in early spring.

Sparrows.—"D. G. H.," East Bridgewater, Mass. Sparrows are usually for sale in the spring. There are no "means to secure their staying," yet if boxes are put up for them, they are likely to take possession of them when set at liberty; but they may fly off and reject your hospitality. We cannot tell what the prices will be next season.

Syrup.—"M. S. B." The syrup referred to is an incidental product in the process of sugar refining, and it is not practicable to make it in the household.

"Black Bug" on Cherry-Trees.—A correspondent asks, "What is the occasion of the black bug on cherry-trees? Are they destructive? and can they be got rid of?"—The "occasion" is that the insects are there to get a living. We suppose the "black bug" to be a plant louse. It lives by sucking the juices from the young shoots, and is injurious. It can be killed by the use of tobacco water, applied as most convenient.

Oiled Paper.—In these days, when so many plants are sent by mail, we find a frequent use for oiled paper as a wrapping material. We have used that prepared by Mr. F. Trowbridge, South Milford, Conn., and found it very serviceable. Plants put up in slightly dampened moss, rolled up hard in oiled paper, and then covered with common brown paper, will go safely a long distance. The oiled paper is much lighter than India-rubber cloth, and for the purpose, quite as useful.

Fish Ponds and Muck.—"M. Q. E.," Centreville, Ind. It is quite practicable to make fish ponds in muck beds. There are very frequently good gravel and sand, and springs at the bottom. In this case you can have trout. Make the ponds long and narrow, and screen the outlet. If the water proves too warm for trout you can make the ponds of any shape that pleases, and put in black bass. The muck will generally pay for the digging, with a large surplus. If the sides of the pond are left with a slope of 45 degrees, they will not need stones nor plank.

Soaking Grain for Pigs.—R. H. Dixon writes that the plan of soaking and cooking whole grain alluded to in "Harris on the Pig," does not prove successful with him. "The pigs will not eat more than half as much as they will if the grain is ground before cooking." His plan was to "put one bushel of corn to a barrel of water in a common cauldron holding forty-five gallons. Get the water to boiling heat. Then shut up tight to keep the heat under the boiler, and leave it for twelve or sixteen hours, when the corn will fill the vessel. This is cheaper than boiling the grain until it is cooked. It will be seen that the corn swells to three times its original size. The pigs had been used to cooked corn-meal, and would not eat as much of the cooked whole grain." We have no doubt that cooked meal is better than soaked or cooked whole grain, but where it is not convenient to get the corn ground, soaking or cooking it whole is better than feeding it dry.

The Humming-bird Moth, also called Bee-moth, and Clear-wing, is the insect sent us by D. H. Horning for a name. It is *Sesia Thysbe*. It is a day-flying moth, and is often seen hovering about flowers with movements much like those of a humming-bird, and is readily distinguished by the large transparent spots upon the middle of the wings. We do not know the larva, but no doubt it is destructive to vegetation. Neither Harris nor Packard, the only works we have at hand, say anything about the larva or what it feeds upon. We wish Mr. Riley would write a work upon insects—then we should have one that would tell just the things that persons not entomologists wish to know.

Wild Animals in Maryland.—In looking over one of our exchanges, the Civilian and Telegraph, of Cumberland, Md., we were struck with the long list of bounties paid for the "scalps" of panthers, wolves, foxes, etc. A hurried footing up and classification of the list shows that during the past year there were killed in that county, 1 panther, 7 wolves, 22 wild cats, 337 foxes, 7 owls, and 3 hawks, upon which bounty was paid at the rate of $5 for the panther, $20 each for the wolves, $1.50 each for cats, $1 each for foxes, hawks, and owls. This may not be extraordinary, but it strikes us as remarkable that so many of the "varmints" should be killed in a single county, within a few miles of the National Capitol.

Purification of Cisterns.—D. L. Williams, E. Hartford, Conn., and several others, have written to say that they keep the water in their cisterns pure by continuing the conductor, or inlet pipe, nearly to the bottom of the cistern. By this arrangement the fresher water is at the bottom and that which has been longest in the cistern passes out at the overflow.

Catgut.—"J. M. E.," Fairview, Pa., says that there is a dispute as to whether violin strings are made of "pussy's inwards," or whale's sinews, and the question is referred to us. We decide it easily—neither. Catgut is made from the intestines of the sheep, which undergo various processes of soaking in ley, scraping, drawing, twisting, and sulphuring. The best are made in Italy, in part, because the workmen are more skilled, and in part because the sheep are so poor and lean that their intestines are tougher. Very poor strings are made in England, and it is said to be because the sheep are fat. The name, catgut, is said to be a corruption of *gut-cord*.

Bee Notes.—*By M. Quinby.*

The Apiary In September.—Where plenty of buckwheat is in blossom there is little danger of robbing, but when that fails, weak hives will be plundered at once unless protected. Make the entrances to them narrow, so that the bees may guard them, or remove them without delay. No one should complain of bees being robbed now, as prevention is in his own hands. Leave no refuse honey near the apiary. Such may be carefully fed to light hives. Remove diseased stocks now. There are too many chances that they may be robbed to the detriment of others. The bees of such may be given to queenless stocks, but not until after having been confined 36 hours in an empty box, as a precaution against the infection. That portion of the contents of diseased hives which consists of brood and honey mixed, should be buried in the ground—not a particle of such honey should be fed until it has been well scalded and skimmed. The portions free from brood may be strained, scalded, and saved for use. Condemned hives that are healthy and strong enough to defend themselves, may stand until next month. Time will thus be given for the young bees to mature and leave the combs clean for next year. Italians seem almost exempt from disease. A heavy hive, though queenless and having but few bees, if not infested with worms, may be saved by supplying queen and bees. Bees of two or more hives will unite more readily if moved a mile or so. Where there are few bees and no sealed brood, it is strong evidence that there is no queen. When it is desired to winter light stocks that have but little comb, they must be fed freely that they may build comb and rear brood. If attended to *now*, this may be done, but it is not always the best economy.

Where there are plenty of bees and comb with a lack of stores, feed in October.

Artificial Swarms.—The experiment of "W. A. M.," of making artificial swarms, by putting a comb of brood in a Langstroth hive, with empty frames, and setting it on the stand of a populous stock that has been removed, is not new. Although most of the bees will probably remain on the old stand and rear a queen, yet it is not the most profitable way of making swarms. 1st. All the bees will be old ones, that die off by hundreds every day. It will be six or eight weeks before any young bees can replace the old ones in bringing in stores. 2d. They cannot get a hatched queen in less than ten days—it will often be fifteen. All new combs made during the process of rearing a queen, will be drone cells, which will be a great detriment to the hive in all the future. When there are such cells, drones are reared; it is better to cut out and melt them into wax than allow such to remain. Whenever practicable, secure the old queen to the new swarm. If not, introduce a fertile queen at the earliest moment that they will accept her; or give a sealed queen-cell ready to hatch. As soon as she appears, worker cells are made. To find a queen in moveable combs, lift out and look over the frames carefully in the middle of the day, if possible, without disturbing the bees with smoke. When found she can be taken in the fingers without danger of being stung. With the box hive, drive a quart of bees into a box, look for the queen, if not found, let the box stand—but few bees will fly—and drive as many more into another box, and continue until the queen is found. Put half the bees into the new hive on the old stand, the other half back into the parent hive. The old hive will have the young bees in a day or two, and will accept of a fertile queen in two days after. A cell may be put in next day, and when it is hatched, in a day or two, it effectually prevents any after swarms, except where cells were started before operations were commenced. If a queen must be reared from the start, let the old hive do it, as it has no combs to build. Do not let the bees set outside the hive idle for "three weeks" before commencing operations, especially in time of honey.

Peach Culture.

BY LEWIS F. ALLEN, BLACK ROCK, N. Y.

"Peach Culture, by James Alexander Fulton, Dover, Delaware. Illustrated. New York: Orange Judd & Co., 245 Broadway."— Such is the unpretending title of a book which the reader must actually look into before he can venture a guess of its merits from any previous knowledge he may have had of its author. He assumes no titles, literary, or otherwise, and it is only in the modest dedication of his work to "Governor Gove Saulsbury," of the State of Delaware, with whom, as a "friend and neighbor," he is well acquainted, that we get an inkling of his whereabouts. But, no matter for the non-essentials. Mr. Fulton has written for the million a book on a most important branch of Fruit Culture, in a treatise by itself, filling a gap hitherto unoccupied. This labor he has done well, and every intelligent reader will accord to him the credit of being master of his subject.

The book contains one hundred and ninety pages, large duodecimo, including a copious index, with clear print, good paper, neatly bound, and sufficiently illustrated—in short, a tidy volume. A simple preface of two pages gives the subject matter of the work, so that the reader is at once informed of what it treats. The introduction gives us the Botanical Classification, and History of the Peach genus—*Prunus*—in its varieties of fruit, whether borne on tree or shrub. We are also informed of the different localities in the United States where the peach grows and flourishes,—more particularly in the Middle and Southern Atlantic States, where he is best acquainted. Yet his observation extends through all the others, sufficiently, to tell the reader that certain localities in any of the States lower than 43° north, will grow and ripen the Peach to perfection.

Our author begins with the kernel to be planted, and carries it through the various stages of growth in the nursery, to the taking up, packing, transportation, and setting out of the tree in the orchard; its cultivation there, the ripening of its fruit, picking, packing, and sending it to market, when the labor of its production is ended; —and all in a manner of particularity in details, so lucid in explanation, that his skill, knowledge, experience, and long familiarity with his subject cannot be doubted. The diseases to which the peach-tree are subject, the insects which prey upon its life, the remedies applied to one, and the methods of destruction to the other, are fully discussed. The soils best fitted for its development, with their various positions and relations, are also thoroughly and sensibly considered, and in a way which no cultivator need misunderstand. The style, too, is racy, the language plain and appropriate; showing the author to be a scholar, with somewhat of a poetic fancy, yet altogether practical in his notions. No man who plants a peach-tree with the intention of enjoying its fruit, but can profit by the reading of this book, and in order to succeed to the utmost, should not be without it. This may be called high, even superlative praise, but knowing whereof we write, we say it freely, and in good faith; and right glad we are that in the multiplicity of recent fruit books, by competent masters, we find this additional one of which we can speak thus commendingly.

Having said this much of our author and his book, which has revived a thousand pleasant recollections of a life-long familiarity with this universally coveted fruit,—hating the egotism which may attend it,—as we like to indulge in an occasional talk on various other rural topics, we must indulge a word or two on this—call it gossip, if you choose. We were born in a peach orchard,—not out of doors, among the trees, exactly,—but their boughs swept deliciously under the windows of the room where we first saw the light, and over the premises where we spent several years of early boyhood—how many years ago, it were bootless now to tell. The place was on a rocky declivity at the sunny base of a huge mountain, overlooking, but a few miles distant, one of the pleasantest towns in the Connecticut Valley. Our grandsire, after an active service in the Revolutionary war, wishing to avail himself of a water-power for manufacturing purposes, and having a decided love for the cultivation of the various fruits, had reclaimed a considerable farm from its native wilderness; removing from his pleasant home in the village hard by, on an elevation of some hundreds of feet above it, he reared his trees of various kinds and planted extensive orchards. The peach would not grow in the lower valley at all, although plantations of it were often attempted; and that was in the latitude of 43° north. I state this to show how capricious the peach is in its choice of locality, soil, and position. The ground was a light, warm loam in composition, and too rocky for general tillage; but producing the sweetest grass, and the choicest grain, and vegetables, where an arable spot gave room for their growth and cultivation. But such peaches, and apples, and pears, and plums, and apricots, and cherries,—Sweet Water grapes, even, for so long ago as that, this pleasant flavored little foreign fruit was there cultivated—we have never since seen excelled!

All these fruits grew, and ripened in abundance. They shot up among the rocks in wonderful vigor, and produced their annual crops with scarcely ever a failure. Among the peaches were the Red and Yellow rare-ripes, the large Red-checked Melocoton, the Grosse Mignonne, with its score of synonyms, the Snow, and various others. The present fashionable kinds—sprung from these choice old standard varieties—were not then known, but none better than they then were, have since been invented or produced.

No peach markets then existed as now. People from the neighboring villages came then in the ripening season, and bought and carried away hundreds of bushels for their own use; but there were no railroads in those days, (while now a railway runs just at the foot of the farm), scarcely a spring wagon, even, and no facilities for carrying these delicious fruits to a distant market. And there hung the peaches in their ripening luxuriance, plucked as they were wanted, or lying on the ground to be gathered as food for the pigs, or rotting there. In fact, the whole mountain slope, thereabouts, produced its luxuriant peaches and other fruits for many years, and possibly might do so, even to the present day, were the requisite pains taken in their cultivation. But its little value for general cultivation, and long ago passing out of the family of its original possessor, the farm has since mostly grown up to forest.

Such declension of peach culture is but an example of hundreds, perhaps thousands of New England and New York localities, where fifty and more years ago the peach flourished in untold abundance. In scarcely any of those localities do they so flourish now. Many causes have been given for their decline, but on these we need not now treat. Peach culture has become a specialty. There are multitudes of localities scattered all over the country where peaches will still grow and flourish. In some the trees live and bear crops for only a few years—a dozen or so, at the utmost—in others they last forty or fifty, continuing productive to the last.

In the completion of his work, we wish the author had given a special chapter to *amateur* cultivation; that is, for the particular instruction of those having only a small bit of ground, aside from garden purposes, where they might cultivate some choice varieties, and where, although the soil or position be not the best for their development, they might still be *coaxed* into bearing. Yet even the amateur can draw sufficient instruction from the book to answer his chief purposes, although written mainly for the orchardist.

We consider the peach in its perfection, plucked in its full ripeness from the boughs of the tree—not hard, and transported hundreds of miles until it acquires an *artificial softness*, not ripeness—the choicest, most palatable, and most healthful fruit grown in our temperate climate. It can be applied to a diversity of uses—aside from its eating when freshly ripened—in various processes of cooking—all contributing to our enjoyment and luxury. As an enthusiastic friend of ours once said of the tomato, "They are *excellent, superlative*, aye, VEHEMENTLY good!"

We heartily thank Mr. Fulton for his little work, got up with so much care, while congratulating the peach-growing public on the opportunity of possessing a book so valuable to their occupation.

Horse Papers for Farmers.—No. 8.

A Wisconsin farmer writes that my estimate of the cost of raising horses is wrong, and that in his county it *does* pay to raise common stock. Here is his statement: "Our custom is to raise colts from our common farm mares that we work on the farm and on the road—good, sound animals worth from $150 to $250 each. We pay from $5 to $10 for service—usually $5. The colt follows its mother mostly from 3 to 4 months; then, if we wish to sell, we get $35 to $50. I sold one last fall for $35 that had traveled 750 miles on the road. Our colts grow up on hay at about $5 per ton, and at 3 years old cost about $50, and will sell for from $100 to $125, and for 4 to 5 years old, about $150 to $200. There are no $50 stock horses kept here, and no raising poor horses that cost $200 and selling them for $150. Every farmer that raises horses here raises them for gain, and he gets it. We have good horses that will weigh from 1,000 lbs. to 1,600 lbs., and we raise them with about the same care that we do our cattle. We don't object to fancy horses for fancy men, but we want work horses, and we know that we can raise them cheaper than we can buy them.

"A neighbor of mine has one of the so-called 'lunk-head' horses, he works him the year round and gets some $200 for his stock at $5 each."

It is an old saying that "circumstances alter cases," and it is impossible to make any estimate of the cost of farming operations that will hold good over the whole land. Hay that costs $5 per ton in Wisconsin, costs $25 per ton in this vicinity; and, supposing the other items of the cost of raising a colt to vary in the same proportion, the colt that costs $50 in Wisconsin would cost $250, if raised in Westchester Co., N. Y. Consequently, so long as good horses can be bought at the West and shipped East, so as to be sold for $200, common stock grown on poorer land here, though at a greater outlay of money, will not sell for what it has cost to raise. So far as our correspondent objects to my figures, this explanation is sufficient. I beg, however, to tell him, that in the matter of "lunk-heads" and "fancy horses," he is mistaken. He knows a certain class of horses that are capable of doing a satisfactory amount of work, and of which the offspring may be cheaply raised in that region of low-priced hay. Of course, in the absence of anything better, these horses are very good, and it is quite natural and quite proper that he should stand up for them, zealously, as he does. What I especially desire that he should understand is that, good as they are, he can get something much better if he will. From what I have seen of Wisconsin horses in the army, I should say that the better mares were admirable for breeding, and if this man and some of his neighbors will club together and buy a thorough-bred, English running horse of good quality, and will breed only to him, they may, by using good care in the selection of dams, not only bring New York horse-jockeys to Wisconsin to buy fine road teams, but they will produce a race of animals which, for the every-day hard work of the farm, will be vastly superior to what they now

have; and the cost will be so little increased as not to be appreciable. It is not necessary to have a "$50 stock horse;" $500 will buy and land in Wisconsin a good thorough-bred stallion, that has proven a little too slow for racing. He can be put in the team and made to earn his living (without abuse of course); and 40 mares at $5 would make him profitable. The cost of the service has nothing to do with the value of the get; I mentioned $50 as the usual price. If the same blood can be had for $5, all the better,—and it can be.

Why is it that farmers almost universally suppose, when improved stock is spoken of in an agricultural paper, that reference is made to "fancy stock?" There is no question, of course, that thorough-bred horses and their progeny are used for fancy purposes,—for races, for horse trots, and for swell driving—but what of that? They are so used because they have more speed, strength and endurance, can put forth tremendous exertion for a longer time, and have vastly greater pluck than cold-blooded horses have. These qualities are precisely what best fit them for the farmer's use;—not to hitch up with the best harness for Sundays and holidays, but to work before the plow and to haul heavy loads. Their briskness and wiryness more than make up for their loss of size. Without knowing precisely the character of the farm horses used in Wisconsin, I assert without hesitation that a half-and-half cross between them and the thorough bred race-horse would commence hard work earlier in life, would go more miles in an hour, more hours in a day, more days in a year, and a good many more years in a life-time than the present stock; would be as easy to keep, and would haul as big loads and would be much more valuable as breeding mares. So, if you please, we will not consider it an argument to talk about "fancy horses for fancy men." These papers are, as they profess to be, written "for farmers," and they are written by a farmer who believes that he knows what his brother farmers require, and is glad of an opportunity of telling them. It is not expected nor desired that they shall be accepted without question or criticism, but I would be glad to have them accepted in the spirit in which they are written, and to have my readers believe that in what I say I have no other motive than their profitable instruction; and that I am writing not from theory, but from considerable experience and observation of horses of thorough-bred and other stock.

If my life depended on my going a *very* long distance with a heavy load in the shortest possible time, I would select a pair of racing mares in preference to the best "work" horses I ever saw. Of course for work, a cross between the two would probably be still better.

It has been objected that race-horses are *too fast* for cultivating among rows of corn. Some are and some are not. It is not the fastest horses that walk the fastest, and there would be the same chance for finding slow walkers in a racing stable, as among farm teams,—save there would be fewer lame and stiff animals.

Several correspondents have asked where they can buy thorough-bred stallions for moderate prices. There are several racing studs in different parts of the country, where a number of colts are raised every year for the turf. A large proportion of these, when tried, prove too slow for racing, and although of the very choicest blood, being unfit for the use for which they were intended, they can be bought for the price of carriage and saddle-horses. These animals should, however, be selected with much care, as the absurd and pernicious custom of running very young horses is rapidly injuring the race, and much of the discarded stock is weedy, and totally unfit for farmers' use.

Another subscriber, who has been purchasing a very nice horse for pleasure driving, asks how such an animal should be fed and groomed.—There are all grades of care bestowed on such horses, from the most ordinary treatment, to that given by the owners of very valuable trotting stock, who keep a groom to each horse, and whose outfit of stable furniture costs a small fortune for each stall. In Herbert's Hints to Horse-keepers, there are two chapters, "How to Feed a Horse," and "How to Stable and Groom a Horse," which occupy thirty pages, and which are the most complete statements on the subjects that I know of. It is not possible to condense within our limited space anything more than the principles of the feeding and grooming.

As a general rule, too much food is given, and too large a proportion of it is hay. Ten lbs. of hay and twelve lbs. of oats constitute a good day's fodder for a working horse, whether the work be fast or slow. Herbert says, "they should be fed with a lock of hay and half a pail of water the first thing in the morning on opening the stables; and when the stables have been aired, cleaned, and littered, should have, after being thoroughly groomed, their other half pail of water, and, if they be not going out, four qts. of oats; and when they have eaten these, they may have about four or five lbs. of hay in their racks, and be left dark and quiet. If they be going out early, they should have six qts. of oats at their morning feed, and no hay. If they be standing in the stable, and not to be put to work until afternoon, they should be again watered, and have four qts. more at noon; and when they return at night, should be cleaned, watered, fed with oats, and have the remainder of their hay in their racks at night. This will be found amply sufficient to keep horses in good working condition, when no unusual labor is expected of them, and neither extraordinary turns of speed nor feats of endurance. Half a bushel of nicely washed carrots, given, a few at a time, every week, will be found to improve the coat, to be particularly beneficial to the stomach and wind, and to be very grateful to the animal; and, in weather, and in places where they can easily be provided, a few handfuls of green clover, fine meadow grass, or maize * * * * give a kindly alterative to the system, keep the bowels moderately open, and please the appetite of the animal." A mash of stewed bran and oats once a week is also recommended. Such a mash is excellent after severe exertion,—and in case of unusual fatigue, a quart of ale may be added. Nitre and all drugs should be avoided, and new corn should *never* be fed. Old corn may be used, but not more than two-thirds as much as of oats. Never feed within an hour of working time, and work slowly at first to allow the bowels to be fully evacuated. Broken-wind is caused by too sharp work when the stomach is distended by food or water; founder by being overfed while hot or exhausted; "Colic and acute inflammation of the bowels from being freely watered and subjected to drafts of cold air, showers of rain, or being injudiciously bathed or washed after sharp work, when their stomachs are empty, and themselves craving a good dressing and a warm mash."

The harder the work, the more abundant and nutritious should be the feed; hay should be diminished, and oats increased to fourteen or sixteen qts., or as much as will be eaten. Water should never be given in a large quantity shortly before work, nor at all when hot or very tired. At other hours it should be supplied often and in abundance.

Youatt recommends that, whenever possible, horses should be groomed in the open air, whenever the weather is not too severe. It not only keeps the mangers and the food more cleanly, but the fresh air has a valuable, invigorating effect. The curry-comb should be used very lightly, so as not to inflict any pain; and if the brush be a soft one, it will only require a little heavier hand to make it sufficiently effective. Even a hair cloth is sufficient with very thin-skinned horses. The head should be dressed first, and it and the ears and the roots of the mane should be made thoroughly clean, before proceeding to the body and legs. Every part must be thoroughly cleansed of dust and dandruff; and the whole hide should be thoroughly wisped all over with bunches of dry straw, until the coat is clean and glossy.

Herbert thus closes his chapter on grooming —"it requires care, dexterity, exactness and honest application of work. It cannot be procured without some expense, or relied on without the active and intelligent supervision of the master; but without it, no stables can be in order,—no horses healthy, happy or in condition for doing the work for the performance of which they are kept."

It is not, of course, to be expected that farmers will keep their horses in anything like the condition of pleasure teams; but they should always have the ideal of good grooming before them, and approach it as nearly as their circumstances and their means will allow. It will undoubtedly pay for any farmer to keep his team horses thoroughly clean from head to foot, having them well groomed twice a day; but of course in a large majority of cases this could only be done at a great sacrifice in other respects, for, where but little labor is kept, other work is often of more imperative consequence. In bad weather, however, when other work is not pressing, the horses should receive extra attention, and especially when they come in from their work cold, wet and muddy, should they be made thoroughly dry and comfortable before being fed and littered down.

Ogden Farm Papers—No. 9.

Much trouble and disappointment has come from the deep plowing of last year's cornfield, to which reference has been made in these papers, and has obliged me to abandon soiling almost entirely for nearly the whole of July. If this field had been plowed only 5 or 6 inches deep, instead of 10, we would not only have had a much better crop of corn last year, but our broad stretch of oats for soiling would have been a good crop instead of a poor one, and the earliest sowed corn would have been ready to follow them closely, instead of hanging back for a couple of weeks, and only half growing at that. The oat crop amounted to very little, and the corn was so backward that if cutting from it had been commenced as early as intended, we would have run aground in a week.

The clover, (20 acres), although a poor crop, in a measure helped us out by affording very fair pasturage for the cows to run upon. In one way and another we managed to squeeze along until the corn was large enough to be cut with

safety; but as much of the late soiling corn is also on the deeply plowed land, we may come short again in the autumn. On the whole, we shall have done about as much pasturing as soiling this season, and shall suffer in consequence.

All of this is very annoying but is not discouraging. The land in clover, except where seaweed was spread, (where the clip was pretty fair), was in a condition of unmitigated poverty, and it is, to-day, only necessary to look at that land, and imagine how much worse it was before it was drained, to find ample justification for the old name of the place: "Poverty Farm." These 20 acres were simply plowed up and seeded, because there was no time and no manure for anything more, and it will be a year or two yet, before we get fairly around to it. The deep plowing was a mistake that will not be made again; and another year's manuring and cultivation will probably make a top-soil good enough to give plants a fair start, and enable them to take advantage of the final and permanent benefits that deep plowing must ensure even on such a soil as that of Ogden Farm.

It has not been all bad luck with us this year, for the corn crop is first rate. It would not be modest, and probably not true, to say that this is the best field of corn in the county, but I see and hear of none better, here or elsewhere.—The growth is vigorous, the color strong, and the whole appearance most luxuriant, in spite of the drouth—thanks to subsoiling. It is too early yet to decide positively which treatment, as described in the April number, will have the best effect on the crop, because there was an interval of ten days between the first and the last planting, and time counts for a great deal in the growth of corn. Nothing can be determined until near the end of the season, when the later planting shall have completed its growth; but the present indications are very strong in favor of the narrow strip that was plowed in the fall, some time after the manure had been spread.—One thing is very evident: the corn is decidedly better where cow manure was used than where we applied horse manure. This, I take it, does not indicate that cow manure is better than horse manure—only that the latter is diluted by so much straw that less actual manure was applied. It is with no little satisfaction that I offer this cornfield for a sample of what Ogden Farm can do, and give notice that in due time, (and by perfectly legitimate means), I shall make the whole farm equally good.

Probably the most unsatisfactory thing about the position of any farmer who attempts to diverge from the old trail is, that for every word of encouragement, he gets ten sneers, and, although people are not usually so rude as to say disagreeable things to one's face, there will be ten men to call him a fool where there is one to help him with kind words. This can be endured—but to have the whole race of detractors transformed into old adherents as soon as one does succeed, takes away one great source of the satisfaction that success ought to bring. I know more than one man who insisted, three years ago, that my land could not, by any possible means, be made to grow "*nothin*,"—also that there was no use in draining it, for the land was too poor to raise a crop if it was drained. Now I always supposed that I had good healthy opponents in these men, opponents that it would be a sort of triumph to convince of their error. I met one of them the other day on the road:—

"Mornin', fine growin' weather. Pretty good crop of corn you've got this year. I allus knowed you would. Just what that farm wanted. I allus said dreenen' and manure 'd tell on that land quicker 'n on most any other. It never had no chance you see,—so awful wet and poor."

I don't mean to imply that these men, any more than my neighbors generally, had any ill feeling toward me, and I suppose they are pretty good fellows in their way. The great trouble with them is, that they have ridden on one rail so long, that it rather shocks them to suggest that there is any better way to get along, and when the way is shown them, they are ashamed to confess that they have not always known it.

Let me repeat that, in what I have said about deep plowing, I refer *only* to a few soils. I firmly believe that in a very large majority of cases it would be a source of immediate benefit, and there is no doubt that in all cases the ultimate result will be good. Wherever the subsoil is dry, that is, where it is not saturated during the greater part of the year, and where it has a mealy, gravelly consistence, it will do to bring it up little by little, even without additional manuring; and with a good manuring, probably two or three inches at a time would do no harm. But where the subsoil is, as mine was, a slimy, blue, cheesy paste, for weeks after every heavy rain, where the chemistry of the earths has long been getting ready to re-convert it to stone, where no air and no vegetation have helped to ameliorate its condition, it would be wise for enthusiastic young farmers to avoid pitching into it, pell-mell, and bringing up such a quantity of unhealthy material as will poison and stunt everything they attempt to grow.—This is one of the cases in which we must make haste slowly.

One of this season's ventures has resulted somewhat unfavorably. I paid a very high price for an imported English sow, with a pedigree like a race-horse's, and supposed to be with pig to a famous English boar. Time came and time went, and we have no litter of pigs to show for our money, only one splendid sow that has to be boxed up and sent by Express 250 miles, to find a boar suitable for her service. On the other hand, we have a fine litter of Essex pigs, which are good enough to compensate in part for our disappointment.

The plan of keeping a record of the morning and evening milking commends itself more and more to our approval. The amount of labor is trifling; it really delays nothing. In addition to the advantages noticed in the last of these papers, we find that it insures clean milking.—Each girl seems ambitious to have her own cows appear well on the record; or if, through haste or carelessness, she neglects to strip any animal, it is pretty sure to be detected by a comparison of the weight with the previous record. Of course there are considerable variations growing out of different causes, but as a rule, each cow will give a pretty uniform quantity, and if there is a falling off from this, the foreman naturally looks to see what is the matter. If there were to be a neglect of clean milking, he would be quite certain to notice it. At the end of the week, I take away the sheet, add up the total yield of each cow, divide it by 7 for the daily average, add up the total yield of the herd, put down the amount of butter made that week, and write a memorandum of the kind and quality of the feed for the whole or any part of the week. The paper is then laid away in a drawer with its predecessors. There is not much benefit to be derived from keeping such a record for a single week, but if it is faithfully kept during the seven years that the Ogden Farm experiment is still to continue, it will furnish material for a most valuable treatise on Dairy Feeding. It will show the comparative results of soiling and pasturing, of steaming, of raw feeding, and of root feeding; and as both winter and summer we shall undoubtedly use a variety of food, it will give very good ground for deciding the relative values of each, and what is of much importance, will show whether it is best to change the food frequently, or to find out what gives the most nutriment for its cost, and stick to that alone as long as possible.

In short, it will furnish a very strong argument on the side of the book-farming people; for he would be a self-conceited farmer indeed, who would deny the superiority of such a positive record as this, to his own notched stick of personal impressions and traditional reports.

I have done something to advance the use of wooden water-pipes, and I still think they have some decided advantages; but for use under a head of 30 feet or more, they must be selected with much more care than is usual. If every piece were chosen for its freedom from knots and checks, I think that the $1^1|_2$ inch pipe, (which is 4 inches square, outside,) would stand under a head of 50 feet or more,—but taking the run of a pile—weaknesses will be overlooked, which may make much trouble. The worst of it is, that there is no way to take out a defective section and put in a fresh one; so it becomes necessary to saw out the leaking portion, and to make a rather costly patch with iron and lead pipes. Any one who will bear these facts in mind, may safely use this excellent pipe, and even the most defective pieces may be used for carrying water down a slope,—where there is no head,—as from a spring to a horse-trough. If kept constantly wet, and if it be not destroyed by too heavy a strain, it is much the most durable of all pipe, as wood that is so saturated with water that the air cannot enter its pores, is not in the least affected by decay.

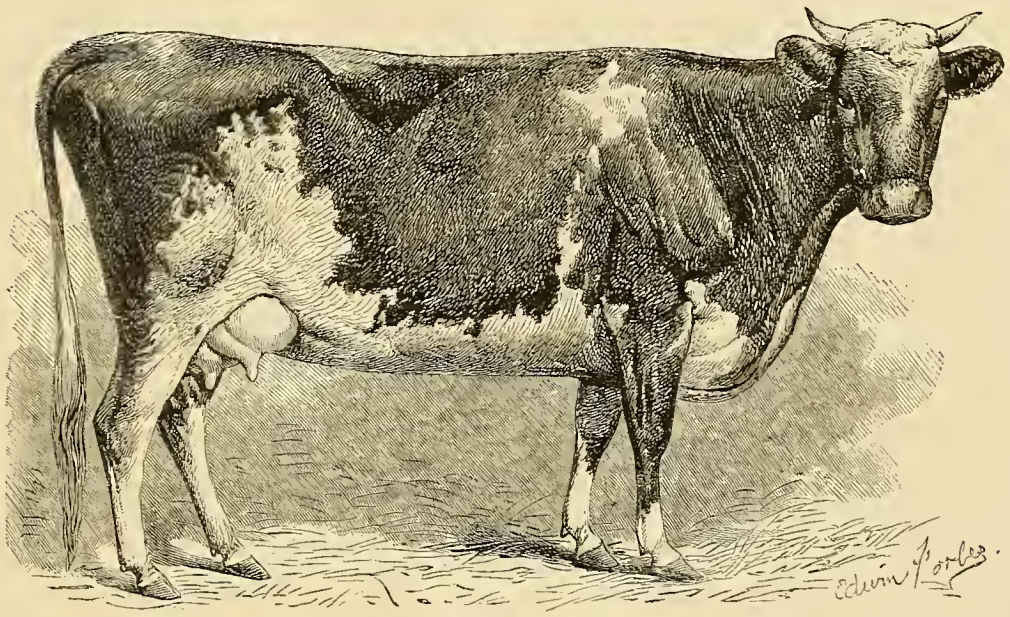
A Western subscriber, referring to my doubt about the profit of corn raising, says: "I planted three to five acres of corn each year for 12 years past, 4 feet apart each way, and beans one way. My beans pay for all the work on the corn. Sold from five acres last year $36. One year, from one acre, raised 74 bushels of shelled corn, worth that year 1.12^1|_2$. Sold the beans for $16; had 800 pumpkins. The crop was worth as follows: corn $83.25, beans $16, corn fodder $8, pumpkins $8. Total $115.25. Good farming pays."

My doubt was not whether it pays to grow corn at the West, but here at the East. Thirty-six dollars won't pay for the labor on five acres of corn here, nor, by a very great deal, for the large amount of expensive manure we have to use. Neither can we be sure of 74 bushels to the acre, nor of 9 York shillings a bushel. Neither can my Western friend by a great deal, for that matter. My doubt was based on the idea that so long as corn is largely raised where it will grow without manure, and whence the cost of freight to us is low, we can better afford to buy than to raise. I still think I am right, but will not be too sure of it until I can figure on my very good crop of this year. One argument in favor of giving up the crop is that it would release labor that can be profitably used in other ways.

With my friend's final statement I fully agree. "*Good farming pays.*" But there cannot be any really good farming at the East without a large outlay for manure in some form.

Cross-breeds and Grades.

The distinction between cross-bred animals and grades is so seldom insisted upon, that we are inclined to define the terms when used in connection. "Grades" among neat-stock, sheep and swine, are animals which have thorough-bred sires, with more or less, or altogether common blood on the side of the dam; while a cross-bred animal has both sire and dam thorough-bred, but of different breeds; or it traces its blood on both sides to thorough-bred stock of different breeds. Thus, if a common cow has a heifer calf by a Shorthorn bull, the calf is a half-grade Shorthorn, and *her* calf, by a bull of the same pure breed, would be a three-quarter-grade Shorthorn. The next grade would be seven-eighths, the next fifteen-sixteenths, etc.—Any pure-blood cow, crossed with a pure bull of another breed, produces a cross-breed, which, crossed with a full-blood or another cross-breed, would represent no gradation of blood, but be a cross-breed still, combining and exhibiting with considerable distinctness, the characters of its different parent breeds, or the predominating ones.



CROSS-BRED HEIFER, "LIZZIE HUYCK."

In the case of grade animals, the common or native characteristics are often almost lost in the half or three-quarter grades, except perhaps some long-cultivated points, like the milking qualities of good, old, native cows, which are often intensified in their grade offspring. This is supposed to show the strength of the vital power of the breed, which has, as it were, accumulated through many generations. By the use, then, of thorough-bred sires, we are enabled to reproduce their valuable characteristics in their grade stock with great certainty. Inferior specimens always occur among herds of pure stock. These must be sold at low prices, or sent to the shambles. They may, however, if females, be used to great advantage often in breeding cross-breeds. As a rule, none but excellent animals should be used as *sires* of either thorough-breds, grades, or cross-breeds.

To illustrate the successful combination of the traits and points of widely differing breeds, we introduce the three-year-old heifer *Lizzy Huyck*, bred by Robert Trimper, of Valatie, N. Y. She is the result of a preconcerted plan of crossing, whereby Mr. Trimper designed to produce good size, feeding capacity, and constitution, and a great yield of milk of high quality. His success in this and several other experiments has been very uniform. Lizzy Huyck is out of a pure Shorthorn cow, (Lady Gifford), a deep milker; and by a cross-bred bull, which was out of a Shorthorn and Ayrshire cow, and by a pure Jersey bull. This makes the heifer, Lizzy Huyck, $^1/_2$ Shorthorn by the dam, $^1/_8$ Shorthorn, $^1/_8$ Ayrshire, and $^1/_4$ Jersey by the sire—or, to state it differently, $^5/_8$ Shorthorn, $^1/_4$ Jersey, and $^1/_8$ Ayrshire. She calved January 3d, 1870. The first trial was begun January 11th; the week following she gave an average of 14 quarts of milk a day, and made 11 pounds of butter. The next trial was begun February 8th; she gave 16 quarts of milk a day, and made 12¼ pounds of butter. The cost of food, which consisted of "hay, corn-stalks, and ground feed" for the first week, was about 33 cts. a day, which, with butter at 45 to 55 cts. a pound, paid very well. For the second trial, the feed cost 49 cts. a day. Other trials were not made, as the milk was required for use. The engraving is from a photograph, and represents the points of the Shorthorn with those of the Ayrshire, while the quarter of Jersey blood seems to disappear, to show in the pail.

THE SMALL HARVEST MOUSE.—(*Reithrodon humilis.*)

Our Native Mice

The mouse which is best known, on account of its frequency in our houses, is a native of the old world, and belongs to a different genus from any of our native species. We are accustomed to speak of wild mice, or field mice, as if there were but one, whereas there are over fifty different species described by naturalists. Some of these are found from Labrador to the Southern States, while others are of very local occurrence. The explorations of the far West and of the Pacific Coast have, within a few years, greatly increased the number known to science. The genera are mainly distinguished by the structure of the teeth. There are some twenty species of Field Mice belonging to the genus *Arvicola*. About fifteen of White-footed Mice, *Hesperomys*—and four of Harvest Mice, *Reithrodon*. The Harvest Mice have short, hairy ears and tail, and the upper incisor teeth have a longitudinal channel along the front face. The one figured is the Little Harvest Mouse of South Carolina and some other of the Southern States, *Reithrodon humilis*. It is about 2¼ inches long from the nose to the tail, which is shorter than the head and body. The color is reddish-gray above, yellowish-white below, with a buff-colored line separating the colors of the back and the under surface. It builds a nest upon the surface of the ground, among the long grass, using as a material, soft and withered grass. This species is not considered particularly injurious to the farmer, as the stores in its nests have been found to be mainly the seeds of wild grasses. Some of the wild mice are very destructive to young fruit and other trees, by girdling them during the winter.

Manure in Pastures.

As a rule, the droppings of cattle in pastures are not spread. They fertilize a very small space, and the grass grows so rankly, that the cattle will not touch it, until they are forced by hunger. These little green blotches are noticed

in every cow pasture. There is a loss of food for at least two years by this neglect. If the manure were spread every fall or spring, as it is in meadows, it would cover a very large space and become immediately available. At least ten times as much surface would feel the effects of the manure, and the grass would all be cropped, and returned again to the soil, and be made immediately available. We know of an old farmer who preaches and practises the beating of dung in pastures. His neighbors laugh at him for his hobby; but we notice that his pastures laugh with clover blossoms, that his cattle are fat, and that his bank account laughs with greenbacks—so the laughing is not all on one side. We have thought there was some connection, possibly, between the half-dozen dung mauls under his shed, and the roll of greenbacks in his wallet. Until we get ready to adopt the policy of Ogden Farm, and abolish pastures by soiling and steaming, it will be safe to spread the manure in our pastures.

Walks and Talks on the Farm—No. 81.

This spring I seeded down twenty-five acres of winter wheat with clover, and as much more spring barley and oats, and for the first time in my experience it is apparently an absolute failure. The wheat ought to have been seeded a month earlier; but I wanted to harrow it with Thomas' smoothing harrow, and waited until the land was dry enough. The field is pretty well underdrained, but there is a great variety of soils; and by the time the whole field was dry enough to harrow, the clayey portions had become so hard that the harrow made no impression on them. This was the first week in May. The weather was very hot and dry and continued so for over six weeks. We had no rain of any consequence, and there was not moisture enough on the surface of the land to germinate the clover seed. Had I sown the seed a month earlier it would probably have caught; or, at the time of sowing, if we had gone over the field first with a heavy pair of common harrows, and thoroughly broken the crust, and then sowed the clover seed and followed with the smoothing harrow, the clover would have had a much better chance. No matter how severe these early spring drouths may be, the soil an inch or two beneath the surface is quite moist. If we could break up this crust, the fine-toothed smoothing harrow would reduce it to a proper tilth, and it would then retain the moisture much better. This loose soil on the surface would act as a mulch.

"What will I do with the land where the clover has missed?" The barley land I will plow up and sow to winter wheat and seed down in the spring. The prospects are now that wheat will bring a good price for a year or two to come. The wheat land I would serve in the same way if it was rich enough. I have not yet given up all hope that the clover has not entirely missed. I once had my wheat stubble at harvest look almost destitute of clover, but we had a good rain soon afterwards and the clover came up and proved to be quite thick enough. What I propose to do is this: I have a good pile of well-rotted manure in the yard, and I will put fifteen loads per acre on the wheat stubble and harrow it two or three times with the smoothing harrow. If the clover is there, this will help it to grow. I will let it lie until next spring, and if there is clover enough I shall either pasture it or mow it for hay and afterwards for seed. But if not, I will plow it up and plant corn. "Why not sow it to barley and seed it down?" For this reason: After much labor I have succeeded in making this field clean. But on a dirty farm like mine the manure still contains quantities of weed seeds, and if I should spread it on the land for wheat or barley the weeds would grow and I should have no opportunity of destroying them before they went to seed. The land would become as foul as before, and I should never succeed in getting the farm clean. This spring I sowed two acres of Anautka spring wheat, and wishing to give it a good chance I put on a liberal dressing of manure and plowed it in. The land was quite clean, but the weeds came up by the million and almost choked out the wheat. What wheat there is, however, is splendid.

It is no use spending time and labor in cleaning land if we sow weed seeds on it in the manure, and then let the weeds grow and go to seed. As long as our manure is full of foul seeds we must apply it as a top-dressing on grass land. I am inclined to think the best way is, to put it on a one or two-year-old clover sod early in the fall, and pasture the field the next summer. The seeds will germinate and the young plants will be eaten and kept from going to seed. Then the next spring plow up if desired, and plant to corn. Cultivate thoroughly and the weeds will be destroyed on nearly all the light soils.

In England, where one-fourth of the arable land is devoted to turnips, the manure is principally applied to this crop. Paradoxical as it may seem, while the turnip is the great renovating crop of British agriculture it requires and receives more manure and more thorough cultivation than any other crop in the rotation. The turnips are all consumed on the farm, and the fattening sheep are allowed all the turnips they will eat and a pound of oil-cake per day, and clover hay in addition. So the more turnips there are grown the more oil-cake is there fed out, and the more and richer manure is there made.

In this country, as yet, clover and grass are almost our only renovating crops. Should we not make it a point to increase their growth as much as possible? If by the application of manure to wheat we double the crop, we sell the wheat and that, with the exception of the extra straw, is the end of the benefit. But if we apply the manure to grass or clover and double the crop, we have double the hay to feed out, and double the pasture; a manure heap at least twice as large, and in the end double wheat and other grain crops also. To get the full benefit, however, of the system of manuring our grass and clover, we must learn to make a profit out of the animals consuming it. And to do this we must pay more attention to breeding cattle and sheep that will grow rapidly on nutritious food. We must raise cattle and sheep to which we can afford to feed our oil-cake at home instead of sending it to England. When root culture is extensively adopted, as it probably will be when the Chinese are here to do the work, we shall apply our manure to this crop; but in the meantime there is no reason why we should not make an effort to grow more and richer grass. With us rich grass must be the basis of good farming.

A farmer in Hamilton Co., Ohio, asks me if I know of any crop that he can grow for feeding pigs, that with the same labor will be as profitable as Indian corn. "We are here," he writes, "in the center of the corn-growing belt of the U. S. No crop begins to pay like corn on good land. 60 bushels of shelled corn per acre is a frequent crop. I have grown 75, and I have seen 90 grown on this farm on a sixteen-acre field, when it belonged to my father. I have never grown it myself. But we cannot raise corn on the same ground forever. Many have tried it, and now only raise 30 bushels per acre in a good year, and from 0 to 15 in a bad one. If we raise oats we get 25 or 30 bushels; barley and wheat, 20 bushels; potatoes, 100 bushels; hay, 1½ tons; clover, perhaps 2 tons, or will pasture six hogs five months, all on ground that will raise 60 bushels of corn per acre. If the land will not produce that, the other crops will be in proportion. You will readily see that corn is the most profitable; next, clover pastured to hogs; next, clover hay; next, other hay. Now, as I only wish to raise a little wheat or barley for the sake of the straw, a little oats for the same reason, and to feed my horses, and I cannot well put all the rest of my land in corn and clover, can you tell me of any crop that will approximate to corn for hog feed, and not cost more than $10 per acre to raise it? I wish to feed out everything I grow on my own land. For this reason I keep sheep to eat up the clover hay. Now, as a hog pays so much more for all he eats than any other animal and I can not put my whole farm in corn, I wish to grow something to take the place of corn to feed to pigs."—I know of no such crop. Instead of looking for some other plant we should direct our efforts to bring up the fertility of the soil to the capacity of the climate. If the climate is capable of producing 90 bushels of shelled corn per acre, our aim should be to bring up the capacity of the soil to that point. To "feed out everything that is grown on the farm," is the true course. But it is well to inquire what crops when grown and fed out, will most enrich the land. It does not follow that because an acre of corn will produce more pork than an acre of clover, that the corn is ultimately the most profitable. If the clover will add 20 or 30 bushels to the following crop of corn, it may well be that the clover is the more profitable crop. "My present rotation," our correspondent continues, "is 1st year, corn; 2d year, corn; 3d year, corn; 4th year, oats or spring barley; 5th year, wheat or fall barley; 6th year, timothy or clover mown, or the latter pastured with hogs; 7th year, timothy mown or pastured, clover pastured; 8th year, corn, &c. I apply my manure (always composted) to the clover or meadow its first winter, so as to increase the second year's crop. By the above rotation, out of 140 acres of arable land, I can have 60 in corn every year. I grind and cook all my corn before feeding it to the pigs."—I have an idea that this man is a capital farmer, and I do not feel like suggesting any change in his management. An intelligent man on the ground can always judge better than one unacquainted with all the details and circumstances of the case. *Theoretically*, however, he certainly does not grow clover enough.

A crop of corn of 60 bushels per acre, 56 lbs. to the bushel, contains in the grain, 60 lbs. of nitrogen, and in the stalks, cobs, &c., say 30 lbs. more, or 90 lbs. in all. A crop of clover, equal to two tons of hay per acre, contains 100 lbs. of nitrogen; and we may assume that the second growth of clover (the same year) would on good land be equal to another ton of hay, containing say 50 lbs. more, and if we assume that the roots of the clover contain only 30 lbs., we have 180 lbs. of nitrogen as the result of a year's

growth of clover, as compared to 90 lbs. as the result of a year's growth of corn. Now, when both crops are consumed on the farm, we shall not be far wrong in assuming that the manure from the acre of clover (including the roots left in the soil) is worth as much again as the manure from the acre of corn. And the same may be said of peas. A crop of peas of 30 bushels per acre will afford manure, including stalks, worth as much as a crop of corn, including stalks, of 60 bushels per acre. If the climate is capable of producing 90 bushels of shelled corn per acre, provided the soil is rich enough, I think that until this point is attained, I should grow less corn and more peas and clover; and I would keep fewer pigs and more sheep.

A farmer in St. Joseph, Mo., writes: "Will you please tell me through the *Agriculturist*, why so many sows die farrowing, and what is best to do for them to prevent its occurrence? As many as half a dozen have died in this immediate neighborhood, although they seemed as healthy as usual."—And a gentleman from Canada writes me that there has been an unusual mortality among the pigs this season all through the Province. The wonder to me is, not that so many pigs die, but that so many survive the wretched treatment that they receive. But I must be careful what I say on this point, for I have just received a letter from a Doctor in Tennessee, censuring me very severely for saying that I was "not sorry that hog-cholera and other fatal diseases are on the increase." And indeed I must say that I rather regret making such a remark. No one has a keener sympathy for a farmer who loses an animal than I have. I, myself, have lost too many horses, cattle, and sheep, not to know how sad a thing it is to see any of our domestic animals die. It is not merely the money loss, severe as that sometimes is; and the pain is greatly aggravated by the feeling that something has been neglected that might have warded off the disease or prevented the accident. So when I wrote the atrocious sentiment that the Doctor quotes, I did not really mean what I said. I fancy that just at that moment a whiff of air from a dirty hog pen must have reached me, or some wretched, half-starved, mongrel sow must have got into the garden or snapped up a whole coop of chickens. No, I am *not* glad that diseases are on the increase, but I shall certainly be very glad if they produce a change in our management of pigs. This Tennessee Doctor says that the disease is not inherited, which I am very glad to hear; and that it is not caused by high feeding nor low feeding, but simply and solely by compelling or allowing the pigs to sleep week after week and month after month in the same bed with no change of bedding. He thinks little can be done to cure the disease, but much to prevent it. "The old beds," he says, "should be destroyed and new ones made occasionally. Throw lime into their beds once a week. Give them sulphur and lime in their food once a week. These remedies with a sufficiency of feed, well administered, will suffice to keep them healthy."—After all, the Doctor and I do not differ essentially. What I recommended was to keep the pigs themselves clean, the pens, bedding and troughs clean, to give them what ashes, salt, superphosphate, or sulphur they will eat of their own accord, to let them have the run of a clover pasture, with access to fresh water at all times. Or if necessarily confined, let the pens be large and well ventilated, and cleaned out *every day*, using plenty of that cheapest and best of all disinfectants, *dry earth*. Cleanliness with proper food and regular feeding, would do more to prevent diseases than all the medicine in the world.

My Diehl wheat turned out better than I expected. It was thin on the ground and the straw was short, and it looked as though it would not yield over 20 bushels per acre. We thrashed as we drew it in from the field. We commenced at ten minutes to three P. M., and by night had the whole field of ten acres thrashed. We had 276 bushels, and there are the second rakings still to thrash, which will probably bring the yield up to 29 bushels per acre. The field is the one I "fall-fallowed" in the autumn of 1868. It was sown to spring barley in 1869, and yielded about 50 bushels per acre. It was then plowed and sown to winter wheat without any manure. It was in fine order, but the heavy growth of barley straw in the wet season of 1869, took the lion's share of the plant-food, rendered available by the fallowing, and left the soil too poor for a good crop of wheat. All that was needed to have given me 40 or 50 bushels per acre was a little manure. The season, the variety of wheat, and the mechanical condition of the land were all capable of producing such a crop, and I shall not be satisfied until I get my land rich enough to average 40 bushels in a good season.

When you have force enough, and the grain is dry enough to grind, thrashing wheat as drawn in from the field, is, I think, much the better plan. If you have barn room enough, thrash outside and put the straw in the barn. I could not have put that wheat into a stack or into the barn any faster than we drew it to the machine, and there is consequently no greater risk from the weather. If a shower comes on, you are stopped just as effectually in the one case as in the other. It requires two teams and three wagons—one wagon at the machine, one going back and forth, and one in the field—one man to pitch, two to load, and one to unload. And in thrashing from a stack or mow, it always takes two men and sometimes three, to get the grain to the machine. So that one or two extra men are all that are required to thrash as you draw in from the field. And yet I have known large farmers draw wheat into the barn one day and thrash it the next! If wheat, and more especially barley, is stacked or put into the barn, it should not be thrashed until it has got through "sweating."

In this section we shall have a splendid crop of apples. The trees are loaded, and the fruit, where the orchards have not been neglected, is large and remarkably fair and free from spots. Even Virgalieu pears, on vigorous growing trees, are, in some cases, as large and fair as they used to be twenty years ago. My Northern Spy apple orchard, next to the Cotswold lambs, is my pet and delight. And all the more so, because the variety has been generally condemned by the farmers in the neighborhood, as unprofitable. Scores of people have urged me to graft the trees with Baldwins, but I recollected the decision arrived at many years ago at a Pomological meeting held during the State Fair at Saratoga, where this variety was under discussion. I think it was J. J. Thomas, who summed up the different opinions expressed, in his usual terse and happy way: "It is a long time in coming into bearing, but worth waiting for." I have between two and three hundred trees, and if they do well they will afford a nice little income. There is a horse barn on one side of the orchard, and the manure from it finds its way to some of the trees near it. These trees are not only larger and more vigorous, with darker foliage, but also came into bearing earlier and had far more and better fruit than those not so favored. "You should check their growth to throw them into bearing," was advice frequently given. Depend upon it, a better way is to thin out the tops freely, and give the roots a liberal supply of plant-food. If kept in grass, which may or may not be the better plan, top-dress with manure every year and keep the grass closely cropped by sheep. To keep an orchard in grass and remove the hay is suicidal. To keep it in grass and top-dress liberally, and consume the grass on the land, it strikes me must be quite as good for the trees as plowing and cropping the orchard—and I do not see why it would not be as good for them as if the land was kept fallow. But do not forget to top-dress every year. My sheep do not touch the trees; they eat up every wormy apple that falls, and are in every way better than pigs.

A Western farmer crossed a thorough-bred Essex sow with a Chester White, and had a very uneven and every way undesirable litter of pigs. I do not know what else he could expect. He says he will for the future confine himself to the thorough-bred Essex, and will not cross these breeds again. Had he crossed the other way he would have had a different result. This mania for crossing without a distinct object, is sheer folly. One of my neighbors had a large, coarse, Chester County sow that he crossed with a thorough-bred Essex, and had a splendid litter of pigs. A young sow from this litter was again crossed with a thorough-bred Essex, and now has a litter of three-quarter bloods that are "perfect beauties."

Of all poor crops, save us from a poor crop of barley. I am no worse off than my neighbors, for many of them have had to cut their barley with scythes or with the mowing machine. It was too short to be cut with a reaper. I plowed under a heavy growth of clover last fall, and sowed the land to barley this spring without plowing, merely cultivating the surface. Geddes said I should have no barley—the land would be so rich. But I told him there was no danger of that, and so it has proved. I have not yet thrashed, but I do not believe it will go over 25 bushels per acre. The trouble was, that we had so much rain in the spring, the barley could not be sown in good season.

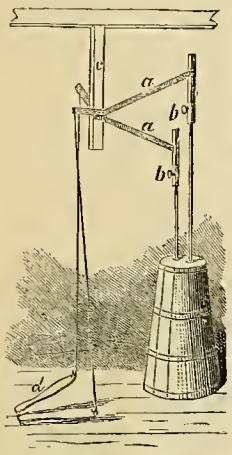
Those farmers are fortunate, as sensible people usually are, who sowed their timothy seed on the wheat last fall, instead of waiting to sow it with the clover in the spring. Nearly all the spring sown timothy and clover in this section is a comparative failure, and farmers are plowing their wheat stubble and going to sow wheat again. I have known instances where the second crop of wheat was better than the first, especially on rather heavy soil. The land was plowed immediately after harvest, and thoroughly cultivated and harrowed at intervals until it was time to sow; then plowed again, and the seed drilled in.

Never was there a better season for corn. The weather has been so hot that corn on good land has made an astonishing growth. The Deacon has been hoeing and cultivating with unusual energy, and some parts of his field are splendid; but he has half an acre or so of clay land where the crop is nearly a failure, and this will pull down the average. I tell him

it is about time to commence to fatten that turkey. He acknowledges that I shall have *more fodder*, but does not despair of beating me on ears. I have drilled in about half of my field, and planted the other in hills. As yet the drilled portion is decidedly ahead—probably because it was drilled in earlier.

Labor Saving in Churning.

Contrivances to lessen labor in churning have been, and are, many and various, from the European peasant's plan of lashing a jug of cream on each side of a wheel of his cart, in which the cream was found to be butter on returning from market, to the most improved "Blanchard." Mr. A. Kemler, with a commendable desire to relieve his wife of some of the labor of churning, made the contrivance here exhibited, which works well. The affair is easily understood by the accompanying engraving. Two bent levers of iron, (*a*), to the long arms of which are attached wooden "heads," (*b*), which receive the ends of the two dasher handles, and in which they are fastened securely by thumb screws, are suspended from the ceiling by a piece of joist, (*c*). From the short arms of the levers, wires are attached, connecting them to treadles. Thus the churn is worked by the feet. The weight of the heads is sufficient to cause the dashers to go down, but were this not the case, as it might not be, were the cream very thick, cords extending from each treadle to the long arm of the lever, raised by the other, would obviate the difficulty. It would be necessary for such cords to be attached at points as far from the fulcrum as the length of the short arm.



ATTACHMENT TO CHURN.

A Farmer's Barn.

Gentlemen of wealth and city merchants who have $15,000 to $40,000 to invest in a barn, have plans enough offered to their inspection, and they are the very ones who need none, because they employ a city architect for $1,000 or more to draw the plans, make the corrections, alterations, and estimates, and superintend the erection. If such barns are convenient it is very well, and quite wonderful withal; and if they are as picturesque as a Swiss cottage, and as inconvenient too, it matters little. Plain farmer folks, however want plain barns, and they want to do about two-thirds of the work themselves. They will dig and lay the foundation, cut the timber, and haul it to and from the mill; with the aid of a carpenter, plan the frame, and see that they have the right stuff. They will spend winter evenings hewing treenails, and planning conveniences, and when spring comes are ready to go-a-head, have a raising and shortly a barn.

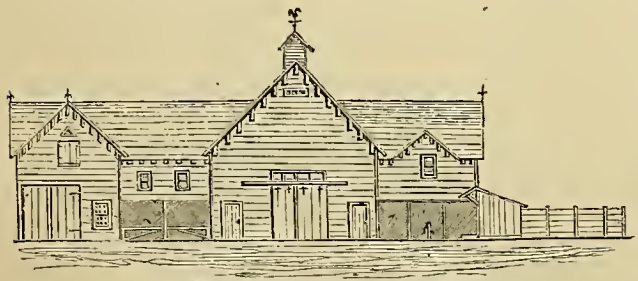


Fig. 1.—ELEVATION OF BARN.

There are many good things about the old-fashioned barn, with its stalls for cattle and horses on each side of the barn floor—with its barn yards and sheds, and big lofts, and deep bays.—Barn cellars are good too—and it is best to have them, if possible. The horse-fork makes the deep bays less attractive, and so modern innovations modify old ways, usually for the better. A western farmer situated where he can not dig a cellar for his barn, asks for a plan for one, all upon one level. We give one which is of the old-fashioned type, but more convenient, and planned so that it may be built very cheaply—and either smaller or larger than designed. Figure 1 shows the front elevation, the main barn having 16-foot, and the wings 14-foot posts. The plan as engraved in figure 2, makes the main barn 36 feet wide and 40 feet long. This gives a barn floor of 12 feet in width, a horse stable 13 feet wide, and a cow stable 11 feet. This is not as wide as we would be glad to have either cow or horse stables, and is as narrow as will do under any circumstances. We allow 4 feet in width for cow stalls, $2\frac{1}{2}$ feet for mangers, $5\frac{1}{2}$ feet for the cows to stand upon, and 3 feet for a depressed cement walk behind the stalls to answer also as gutter and manure holder. The horses, according to this plan, will have 9 feet standing room, and a 4-foot walk at the rear, while the stalls are all 5 feet wide. A passage crosses the barn, near the rear, taking the space of one horse stall on one side, and one cow stall on the other; at the rear of the passage is a box-stall for horses, in size 10 × 14 feet. The continuation of this passage through a door at the left, crosses to the carriage, harness, and tool house, through a shed 16 × 25, open in front, having double doors at the rear, and being paved across the rear end. This shed will be found a comfortable place to groom horses; for them to stand, out of a draft to cool off after hard labor; for them to be harnessed and unharnessed in; and for sheltering farm wagons or other vehicles or implements at certain seasons. Here also should horse manure be deposited daily; and a liquid manure pit should be made, so that the heap of dung and litter, or a more bulky compost may be kept wet down and fermenting. On the right-hand side of the barn a wide shed, which may be still wider if desired, is in the same way connected with the passage across the barn floor. At the rear of this shed is an 8 × 10 box for a lying-in stall for cows, and two stalls for young stock, which are 6 × 10 feet each in size, and capable of accommodating four head, or of being converted into two, small loose boxes. The passage across the shed may be simply a paved or cemented walk. It meets a platform walk one or two steps up at the right, which passes in front of the pig-pens. A projecting roof affords shelter outside the shed.

The hog-pens are on the extreme right. They are planned to be in size each 8 feet by 10. Three have yards only 8 feet wide, but two, much larger. This side of the barn would of necessity be the great manure factory. A liquid manure pit is provided for in the barn-yard. There is room under the shed for the manure likely to accumulate in summer from the cows, but during the winter it should be regularly laid up around the pump, and kept fermenting.

If the raising of roots is followed extensively on any farm where a cellar can not be dug—they must of course be stored in heaps in the field—but enough to last through one or two months perhaps, might be stored, either in the loose box at the rear of the horse-stalls, or in the opposite corner; and if the walls are well lined with hay, the frost will not easily get in.

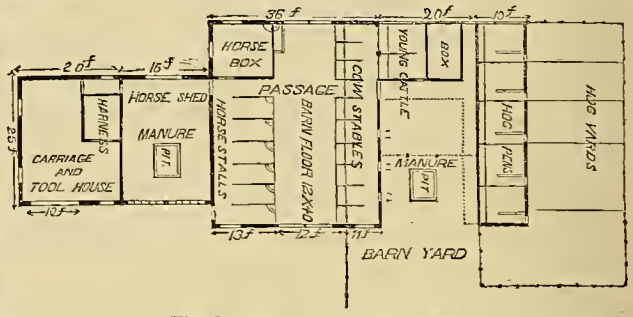
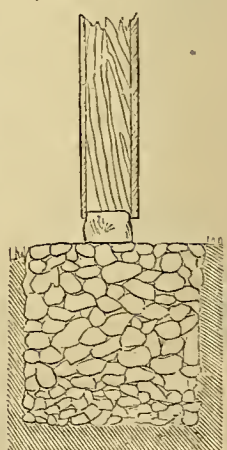


Fig. 2.—GROUND PLAN OF BARN.

The grain-room should be in one of the rear corners above the loose box or the cow stables. If water can be brought in pipes, or obtained by driven wells, the hydrants or pumps may be located wherever convenience dictates. One should certainly be at or near the rear doors, and it would be well to have one at the carriage house.

Foundations for Corn Houses, etc

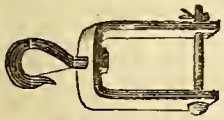
We are prone to devote too much labor and expense to the superstructure, and not enough to the foundation. We are satisfied, if our corn houses are set upon eight-inch posts, which are two and a half feet in the ground. If the ground is such that posts are heaved by the frost, we make the holes rather large and fill in stones around the post so that water shall not stand near the surface. The posts rot and are renewed with some trouble. Other foundations, upon which buildings rest which have no cellars, are usually surface structures of stones, or have only a single course of stones lower than the surface. Mr. M. C. Grout, of Poland, N. Y., describes to us the manner in which he lays foundations for such buildings, particularly corn cribs. He says: "It is as cheap and easy to make a permanent foundation as any. My corn house foundation is of cobble stones, two and a half feet through, coming up to the surface of the ground. Upon this I have a flat stone about four or five inches thick, and a little smaller across than the posts. The ends of the posts rest upon these flat stones. The posts are of varying lengths, according to the uneven surface of the ground, and the sills are framed into them. Below the sills the posts are cased with inch stuff, painted like the building, and tin is put around just below the sills. My corn house is 16 × 20 feet, and 10 feet between sills and plates. Wooden posts


FOUNDATION FOR CORN HOUSE.

soon decay, and stone ones are moved by frost." —The arrangement described by our correspondent we have had engraved, and it strikes us that one very important point is not touched in his description, which is this: If the posts are properly cased, the stones on which the posts rest being small enough, the casing will extend a very little below the top of the stones and so effectually prevent any water from rains, ever getting to the bottom of the post. One thing must be guarded against; namely, using round posts, or those not well squared, at least at the bottom; for in the corners, there would be room for mice to run up between the posts and the casing, and thus gain access to the crib.

The Swivel Clevis for Whiffletrees.

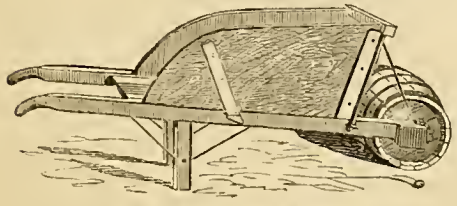
C. H. Polhemus, of Middlebush, N. J., some time ago sent the following note with the drawing of the simple implement engraved.—Another correspondent sent a similar drawing, but the hook had no spring. We made the trial to ascertain if the hook without a spring would do equally well. It does not, because more liable to unhook, especially when the hook is fastened to another clevis and lies flat. Mr. P. writes: "It is these small and simple things that go a great way towards making farm work slip along smoothly. This drawing represents a clevis which has a swivel hook; the bolt passes through the whiffletree, or evener, and in changing from one plow to another, or to the harrow, simply place your thumb on the spring in the hook and snap it into the ring of the plow or harrow, as the case may be. Any one who knows the annoyance of backing up a team while you are under their heels so as to pull out and replace the bolt as in the old way, will, I am quite sure, appreciate this much simpler way of doing the work, particularly in fly time. Any blacksmith can make one from the drawing."



SWIVEL CLEVIS.

A Broad-wheeled Wheelbarrow.

We are often forced to take half-loads or less upon wheelbarrows because the narrowness of the single wheel will not admit of heavier ones being wheeled over soft ground. It is not only upon plowed ground or that in which crops are growing that the wheelbarrow is nearly useless, and the cumbrous wagon, stone-drag or tool-boat, of necessity, are substituted, but sward presents an almost equally soft footing in wet weather. A neighbor was in perplexity;—purslane was rampant in the mangel patch; it was worth a good deal for the hogs; to take a wagon in would sacrifice too many of the roots; the wheel of the wheelbarrow sunk nearly to the hub in the dry, light soil, with half a load, and it was a great waste of time to bring the weeds out by armfuls or forkfuls. We suggested the use of a very broad wheel, and for fear such a one could not be found or easily made, the idea of using a small lagerbier keg occurred to us. The suggestion was followed with entire success. An old keg was bought at half-price, the hoops were tightened and fastened in place by punching a few *teeth*, so to speak, in their outer edges. A hole three-quarters of an inch square was cut in each head, a square iron rod inserted, having its ends filed round and cut the right length. This rod was wedged in place, and a barrow was soon improvised which would carry a heavy load over soft ground. The axle must be secured against working either to one side or to the other, as the wheel has no *hub*, which generally performs this office. Should any one object to this spoiling of a good keg, which would be worth perhaps a dollar and a quarter, he may get his blacksmith to weld a cross-head upon each axle end. These should have two screw holes in each arm of the cross, and it would probably be well besides, to put upon each head over the iron cross-head, a piece of inch board sawed round to fit snugly, and screwed on. When bunging up the keg it would be well to put in a little water, to keep the interior moist, so that it will not shrink.



A BROAD-WHEELED BARROW.

Stallions for Common Labor.

There are very few geldings in France. The reason is, the stallions are not unmanageable, vicious, and dangerous as work-horses, but docile, obedient, easily managed, and intelligent. There is nothing in the nature of things to prevent our having the advantage of the greater toughness, strength, spirit, fearlessness, safety, (in being less liable to take fright), freedom from disease, and longer serviceableness of the stallion over the gelding, were it not that we and our ancestors have so abused the temper of the horse, that his progeny exhibit, among the unaltered males, vicious and treacherous tempers, such as make them unsafe and unreliable as work-horses, even under the kindest and most uniform treatment.

The English thorough-breds, unexcelled for spirit, endurance, fleetness, and wind, are the most vicious of all horses. They came from the gentle, docile, affectionate Arab, and it is only the training and abuse of the English stable-boys and grooms, we verily believe, which have thus, in the course of generations, ruined the temper of the most noble of the breeds of horses. Its blood is infused through all our common stock, and to it we owe most of the characteristics for which we value our horses. Where thorough-breds have been bred for generations under different treatment, as under the handling of the negro grooms and riders of the Southern States, their tempers improve, and extraordinary exhibitions of vice are rare, even among stallions. The habit of using stallions is followed a good deal by French Canadians, who send to this country so many of the so-called "Kanuck" horses. These horses are small, close-knit, and powerful, and when entire, tough beyond comparison. Wherever we meet with them, they are praised for easy keeping qualities, great endurance, and freedom from ordinary ills, and are seldom complained of as vicious. Do we not, in our ordinary treatment, sacrifice a great part of the usefulness and serviceableness of the horse, in rendering him more tractable, more liable to disease, and less intelligent and spirited? Is it not worth while to make the experiment oftener of rearing stallions for labor, though it require more patience, gentleness, and kindness, on the part of those who handle them, and repeated floggings, administered with a will, for any stable boys who dare to pinch or tickle, or to ruffle their tempers?

Cure for Hard-milking Cows.

We are often called upon for some cure for hard-milking cows, and we have known many a valuable cow to be sent to the butcher simply because she milked so hard. It seems not to be a very difficult matter to operate upon the teats of a cow so that they will not hold the milk with such force. Farmers frequently take a sharp penknife and insert it so as not to enlarge the aperture too much, if at all, thus cutting a slit on one side of the little tube in the end of the teat. This causes a little blood to flow, a soreness which is soon over, and relieves the difficulty. There is danger of cutting too much, however, and so doing real damage. We figure a little implement (fig. 1) suggested to us years ago by a correspondent, which may be used with entire safety. A piece of No. 16 steel wire about four inches long, is taken and hammered at one end to a flat, diamond shape, in its cross section, leaving about three-eighths of an inch round and smooth, the length of the flattened portion being about the same. The edges of this portion are then filed, honed sharp, and tempered. The little knife is inserted in the teat, gradually worked past the tip without cutting, then, the thumb and finger pressing close to the end of the teat the knife is shoved quickly upward and cuts a little gash on each side (see fig. 2), which will not be exposed to the air. More than two gashes may be cut if desired, but two well cut, will probably be enough. The operation should be performed at the close of the milking, but milk should be repeatedly stripped from the teats during the next twenty-four hours.

Fig. 1.

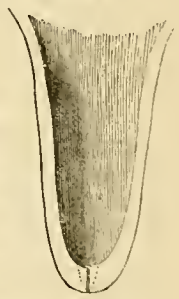


Fig. 2.—SECTION OF TEAT.

Management of Pigs in Ohio.

Mr. John S. Bowles, of Hamilton Co., Ohio, writes: "I have read with much satisfaction Mr. Harris' new book on the Pig, and consider his ideas respecting feeding exactly right; i. e., that it takes a very large proportion of what a pig eats to carry on the vital functions, and that it is the excess of what is necessary for this purpose that goes to make bone, flesh and muscle in the growing pig, or, more particularly, fat in the grown one. But I think Mr. H. hardly does justice to the Chester Whites. I claim the following advantages for this breed of swine (such as mine are.) They are quiet; they are large eaters; they are fast growers; they will fatten at any age; they are a good grazing hog; i. e., if kept till six months old or older; and put on good clover pasture at the rate of not more than six per acre, they will keep half fat all the summer, and grow very fast. Most of the farmers about here, however, do not fatten hogs until they are from 18 to 20 months old. I stand nearly alone in fattening *pigs* instead of *hogs*.—The advantages claimed for keeping pigs through one winter before fattening are, that the greater portion of the *framework* of the animal can be made out of food that costs nearly nothing; viz., clover and mast, (hickory nuts and acorns;) and corn is only necessary to make the fat; whereas, in the pig fattened at nine months old, the whole carcass must be made of corn or other grain. I will illustrate: the pig designed for early fattening must be pushed from his birth,

and of course his carcass is made out of grain; but the pig designed to be made a hog of is fed but sparingly. His mother lives more than half on clover. They will scour the stubble fields and eat every grain, which a full-fed pig or sow will not do. In the fall, he will live on mast as long as it lasts in the wood pasture. He will scour the cornfields after the corn is gathered, and pick up all the stray grains the horses have shelled out, or that may pass through the cattle. Through the winter he must be fed some corn, but even then he will eat the refuse corn; clean up the scrapings of the fattening hogs' pen, etc. Next spring, on the 1st of May, he may go on clover pasture, and will live on it till October 1st, and get half fat. Then his fattening should commence. I am undecided as to the most profitable system, and pursue a medium course. My early spring pigs I keep well fed from the time they are born, and fatten them the following winter. My summer and fall pigs I keep over, and of them I make scavengers, (not *fall* pigs, however, the *first winter*, as half of them would die. I fatten my old sows, and summer and fall pigs to come in from the 15th of December to January 1st, and spring pigs to come in about March 1st to the 15th."——In other words, as we understand our correspondent, the *early* spring pigs are not used as scavengers, but are well fed during their whole lives, and are killed when about a year old. The *summer* pigs are used as scavengers during the following winter, are fed on clover the next summer, and on mast in the fall, and are then shut up and fed on corn for about three months, and killed when 17 to 19 months old. The *fall* pigs are fed grain the first winter, and afterwards treated like the summer pigs, and are killed at say 15 months old. It is a point worth considering, whether a farmer situated like our correspondent, could not afford to keep enough sows to act as scavengers; and whether it would not be better to keep the fattening pigs growing and fattening as rapidly as possible. It is not necessary to feed them exclusively on grain. They should have all the clover they can eat, and after they have got their stomachs full of this, should be allowed all the corn they can convert into flesh and fat. We should be pleased to hear from our Western readers on these points.

Harvesting Corn in Tennessee and elsewhere.

There are but two good ways that we know of to secure the crop. One is to top it and save the tops for fodder, the other, to cut up at the ground and cure the entire plant for fodder, except the ears, which are to be removed when dry enough not to heat and mould in the bin. "Lowery" writes from Tennessee as follows: "We have a very poor system of harvesting corn here; viz., pulling the ears from the stalk when they are ripe, and hauling them to the crib with the husks on. We do not like to pull fodder, from the impression that it injures the corn. We generally follow corn with wheat, and the stalks and fodder are not only wasted, but they render the putting in well of the wheat crop impossible, by clogging the plow and getting in the way generally. I notice that Northern farmers almost invariably cut up the stalk with the ear, and after husking the corn in the field, haul the stalks away for fodder. This requires more labor than our way, but I should think it well worth the trouble.—1. Can the corn-stalks be profitably cut early enough to save good fodder?—2. Will the corn cut thus early mature and harden as well as if the stalk had been left in the ground until the ear were fully ripe?"

When corn is topped, the operation should not take place before the kernel is glazed; that is, covered with a smooth, hard skin, resisting the pressure of the nail. Then the tops of the stalks may be cut off just above the ears, and stooked in small shocks to dry for fodder, while the sun and air rapidly ripen up the ears. This practice is common nowadays where the kind of corn planted has large, coarse stalks, which lose the leaves usually below the ears, and the buts of which are refused by cattle. The corn is harvested by driving through with wagons or carts, and either husking the ears, on the stalks, thus leaving the husks,or, preferably, picking the ears in the husk and hauling them in for husking. Husks are worth fully the price of the best hay for feed, hence it is not worth while to sell at that rate. The field, thus treated, is left covered with stalks 2 to 4 feet long, which should be plowed out late in the autumn, gathered, and composted with manure upon the field. This practice seems to be much less in favor now than formerly, though we like it well for large corn.

When the corn is cut up at the ground, about 15 hills are usually placed in one shock. It is best to cut close, so as to leave short stubs only. The tops of the shocks should be securely bound by two bands, and the buts must stand so as to brace well against the prevailing, high winds. This is done a little later than corn may be safely topped—when it is more firmly glazed, and fewer green ears are to be found. Experiments have been carefully made and show that no perceptible loss of grain occurs if the stalks are cut up after the kernels are well glazed. The gain to the fodder is immense. Both fodder and grain will stand the severest seasonable freezing the night after being cut up and stooked, but previous to that, a slight frost will do the fodder serious injury. Topped corn is more liable to be injured by hard freezing than that in the shock. When cut up and stooked, the corn is left until the ears are fully ripe, when it is husked in the field, the husks left upon the stalks, and these bound in convenient sized bundles and stooked, to remain until fully cured before housing or stacking.

In case the land is to be put in wheat or rye at once—a poor plan, by the way, though much followed—the best way is to stook the corn on every 15th row, bringing seven hills from each side to the row, these hills all being on one cross row. First one hill from each side is set against the middle one which is left standing; then three from the right brought in one armful, then three from the left; then the remaining three on the right and the three on the left, which make the 15. When the whole field is cut up in this way, if the hills stand 4 feet apart, it will be divided into convenient lands 56 feet wide, with 4-foot spaces between them on which stand the shocks of corn. By this method the field may then be plowed and sowed at once.

Thirty Cows on Twenty Acres.

A subscriber writes: "I have twenty acres of land that has been in grass ten to twelve years; cuts from 2 to 3 tons of hay to the acre; has been top-dressed with from 300 to 400 one-horse loads of manure a year; is in good heart and clean; could raise from 50 to 75 bushels of corn if it was not for the white grub-worm which usually takes it in July. The land is dark loam, on gravelly subsoil, and does not need draining. How shall I manage to keep 30 cows, or their equivalent in other stock, on these 20 acres?"

Of course, this amount of stock cannot be immediately supported on so limited an area. It will take some years to bring it into sufficiently good condition. There are two ways in which it may be done: the best, if the question of capital is not an objection, would be to put the 30 head upon it, and buy food for them until their manure has made the land rich enough to produce all that they require. Assuming that this cannot be done, our advice is to procure as much stock as the land in its present condition will well support; to make provision for the perfect preservation of all manure produced, and to bring the land, little by little, to the best condition of which it is capable.

The course of treatment may be as follows, it being assumed that the land will now carry 10 cows. Two and a half acres should be plowed up early in September, and sowed with rye at the rate of 3 bushels per acre. This will need no manure. Five acres more should be plowed this fall, and very early in the spring should be sown with 6 bushels of oats and with from 15 to 25 lbs. of clover seed per acre. This will need no manure. Two and a half acres should receive during the winter a top-dressing of at least 100 one-horse loads of manure, and should be plowed up early in the spring, and planted, one-half acre at a time, at intervals of 10 days, commencing at about the middle of May, with Southern white corn, put in in drills 3 feet apart, at the rate of about 50 kernels to the running foot of row. The horse-hoe or cultivator should be run through these rows, not only often enough to keep them clean, but often enough to keep the land thoroughly light. Hand-hoeing will not be necessary. The rest of the manure, no matter how much of it there is, may be applied after plowing to two and a half acres of land for roots. This land should be plowed as early as possible in the spring, immediately rolled flat, and covered with manure. It is better that it should then remain untouched until there has been at least one heavy rain to wash into the soil the already soluble parts of the manure. From this time on until the middle of June, it should be rolled and harrowed, and rolled and harrowed repeatedly, so as to make it as fine as possible. At this time (June 15th) two acres of this tract may be planted with ruta-baga turnips, in rows 27 inches apart; the plants being eventually thinned to intervals of 12 inches. The remaining half-acre may be kept in clean cultivation until the first wet spell after the first of July, and then receive a transplanting of mangel wurzel from a seed-bed in the garden.

Next spring the first green thing available will be the rye; a cutting from this may be commenced when it is not more than a foot high. When it has been once gone over, it will probably be ready to commence again. If not, a few days' feed may be taken from the grass. After the second cutting of the rye, it may be necessary to depend again for a little while, on the grass field. The final growth of rye will make straw for bedding.

The oats may be commenced on when they are a foot high, and they will be the sole reliance until what remains is in the milk, when the whole should be cut and cured, and stowed away for winter fodder. By this time, probably, the first cutting of corn will be two feet high, and it will be safe to begin feeding from it (that cut very young will sprout again, and

make a good growth before the end of the season). If the corn does as well as it should, with such liberal manuring, it will supply all that 10 cows will consume until frost, and a good deal beside to be cured for winter use. Late in the autumn the turnip tops and mangel leaves will serve for a month.

Of course, all the grass, oats, and corn, not needed for summer soiling, must be saved for winter use; and they, with the roots, should be ample for six months' supply of the stock.

The next season the programme will be varied by the introduction of five acres of good clover from the oat field. The rapidity with which the amount of stock may be increased, and the time when the final arrangement may be reached, will depend on the quality of the land, and the care that is given to the manure. When reached, the final arrangement will be as follows. The 20 acres will be divided into four sections of five acres each, producing alternately, oats sown with clover seed, clover to be cut three times, corn fodder, and root crops. Rye for early feeding may occupy one-half of the corn land, and will be out of the way in time for the last two plantings. There will be enough after the summer soiling to furnish, with the roots, abundant fodder for a long winter, if there are not, indeed, a thousand or two thousand bushels of roots for market.

This is a sort of farming on paper, that will necessarily be subject to modifications, according to local circumstances and habits, but the principle which underlies it; viz., that excessive crops are produced by heavy manuring, and not by wide areas,—is a perfectly sound one; and no one who follows the indications herein laid down, will be disappointed by the result.

Tim Bunker on Old Corn.

"Any Corn to sell?" asked Jake Frink of Dea. Smith one hot July morning—hot enough to scorch cucumbers from the vine.

"Perfect ruin to sell old corn at this time of year," answered the Deacon. "If I had a thousand bushels I shouldn't sell till next winter.—It's bad to sell grain of any kind off of a farm, but old corn is ruin."

"I've heerd 'em call the corn ruin when they worked it into likker, but I never knowed as the grain was ruin," said Jake meditating.

"Ruin to the man that sells it," said the Deacon with great emphasis. "You see, neighbor Frink, you sold new corn last fall, about as soon as it was off the cob, at a low price, and you now have to buy old at a high price comparatively. That is bad. You fatted your hogs and beef, and poultry, on new corn, and they were not more than half-fatted, and you had to sell them a cent a pound under the market. And that was worse still. You have been doing this straight along ever since you have been farming; making poor meats, and selling them under the market—making poor grain crops, and selling them, when you ought to have bought. You see, neighbor Frink, there is considerable philosophy about farming, although it seems to be so plain 'that a wayfaring man, though a fool, couldn't err therein.' Old corn is better than new to make any kind of meat of. I've tried it 40 year, and know. It is solid, and somehow, it seems to stick by the ribs better than anything else. Green stuff and roots will keep hogs thriving, but when you come to laying on fat, there's nothing like old corn."

"It's revarsin' the Scripter order, Deacon, 'new wine in new bottles,'" said Jake.

"Not at all," the Deacon continued, "I put the old corn into old hogs, and that is Scripture and common sense too. Ye see I don't kill pigs. That's on the new corn plan exactly. If there is profit in keeping a pig nine months, gaining a pound a day—while he is making his frame, I think there must be still more profit in keeping him the second nine months, when his frame is already made, and you have nothing to do but to lay the flesh and fat right on to it. The bone and offal are dead loss to producer and consumer, and that is nearly all made in the first nine months. I think I get more flesh for my feed, the second nine months, than the first, a good deal. Then there is some satisfaction in turning out from your pens a hog weighing 600 lbs. instead of 250. With a dozen such animals in your pen every fall, you have something to sell and keep Thanksgiving on."

"Jess so," said Jake, scratching his head as if some new ideas were working, "I never had that kind o' feelin, but I should think it would be orful good. Ye see I never had a hog that would weigh over 350, and two year old at that. I am allers afeerd of gittin out of corn so that I darsent feed high."

"And that is one of the strong pints in the philosophy of old corn," said the Deacon.—"You see, if you keep the old on hand, you always know you have got the new crop to fall back on, and you don't think of stinting till the old crop has gone—and that never comes with me. There isn't any profit in short feed any way. It takes just about so much to sustain animal life, and keep the machine running. If you only feed up to that pint you get nothing back but the manure. All that you feed over that, goes to milk, flesh, or fat, which has a market value, and can be turned into money."

"I see that plain as a pike-staff," said Jake, "I guess I have been runnin' the machines most of my days. I haint sold much, that's clear."

I guess the Deacon's philosophy of old corn is pretty sound. He practises on it, and nobody has any better pork than Deacon Smith, or gets any higher price. I've known him to get 15 cts. when Jake Frink got only 13. The wimmen folks on Hookertown street, say that his pork always swells in the pot, whether it's killed in the old or new of the moon. There aint more than half of 'em believe the moon has any thing to do with pork. Several other old wives' fables have failed since I was a boy.

Hookertown, Conn., July 15, 1870 — Yours to command, TIMOTHY BUNKER, Esq.

Steaming Fodder for Cattle.

The question "does it pay?"—asked with reference to steaming fodder for cows, is one which is pressed upon agricultural editors with more and more force every year. When a notable increase in the price of hay occurs, it is all the more important to farmers to economize in every possible way. A few facts will guide our readers to a decision relative to their particular cases: 1st. Cooked food goes farther than that which is not cooked. It will be within bounds to say that it will go a quarter farther. If 100 pounds of dry hay will produce six gallons of milk, it will produce seven and a half if cooked. 2d. The extra labor required to cook the food properly, often costs more than the gain in the quality of the food is worth. 3d. The manure is worth less, in proportion to the amount of food consumed, because the food is more thoroughly digested, and less is wasted.—4th. Cooking always pays, provided it is well done, on a sufficiently large scale, and with economical apparatus. 5th. The best application of heat is usually by means of steam generated close at hand. 6th. Steam may be generated economically at a distance, and the cooking be done at the barn, provided the steam is either used for some other purpose near where the boiler stands, or a very large quantity is employed for steaming feed. 7th. Danger from fire is a serious consideration. Actual fires, or narrow escapes, have occurred on most farms where cooking by steam has been introduced. Care in putting up the apparatus, and vigilance in its use are the only security against fire.

CATCHING RATS.—In order to trap rats successfully, they must not have their suspicions aroused. If unmolested for a while, they become very much at home, and may then be caught with ease. Mr. Willis P. Storrs, Painesville, O., catches rats as follows: He uses a barrel upon which are two boards large enough to cover it. One board is nailed fast, and the other one is hinged to it so as to form a movable half-cover. A string is attached to the movable part of the cover, and reaches to an adjoining apartment or place of concealment. The barrel is nearly filled with old wheat screenings, and set where the rats will readily run to it to feed; the half of the cover being open, and all other food kept out of their reach. The rats will soon become unsuspecting, and when a goodly number have gathered within the barrel, the cover is closed upon them by pulling the string.

Lawn Mowers at Home and Abroad.

Well kept, closely shaven Lawns are the pride of English gardeners; and in order that the green carpets may be kept in the best order, various machines have been invented, each claiming to be better than all others, and enforcing this claim by a long list of lords and nobles upon whose places it was in use. The strife between these rival English Lawn Mowers was lively and amusing, but the makers have now something else to do; a little American machine has appeared upon the English lawn, and English gardeners and machine makers are in a state of commotion. The English horticultural journals are amusing reading now-a-days, on account of the battle of the Lawn Mowers. The "Archimedean," as the American machine is called, has clipped its way into favor, and so high an authority as the Gardener's Chronicle concedes its superiority. There are a number of American Lawn Mowers, essentially alike in principle, but differing in mechanical details.—They all have a two-edged, spiral knife, which revolves rapidly against a straight-edged, stationary one. Hill's Mower was the first made on this plan, and is essentially the one now known abroad as the Archimedean; not only is the cutting portion of the American machines more simple than that of the English ones, but the gathering of the grass is dispensed with. The taking-up apparatus adds to the weight and expense of the machine, and much time is consumed in emptying the gathering-box. This scattering of the clippings upon the lawn is the troublesome point with some of the English writers, and much fine writing has been expended in showing that it will never do. The Gardener's Chronicle, in summing up the points in favor of the American machine, concludes thus: "It will cut grass where our ordinary mowers would be of no service. To the scattering of the grass instead of gathering it up, there is decidedly some objection; but where, as it is rec-

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WOOD DUCKS—MALE, FEMALE AND YOUNG.—DRAWN BY HERRICK.—*Engraved for the American Agriculturist.*

ommended, the lawn is cut regularly twice a week, as it should be, the objection is very trivial; and in the other cases, the time saved in the cutting compensates for the loss in having it swept up, if found desirable."—In this country the popular machine is the Landscape Lawn Mower, which in several particulars has improvements over the Archimedean. We have used one the past summer with much satisfaction, and are pleased with the simplicity of its construction, the ease with which it works, and the character of the work that it does.

The Summer, or Wood Duck.

This familiar, native species is universally admitted to be the most graceful and beautiful of all ducks. We can hardly compare its delicate beauties, its gay and richly tinted feathers, its vivacious motions, whether upon land or water, or on the wing, with the deliberate movements, and snowy plumage of the majestic swan, but it is not too much to say that with this single exception it is the most beautiful of all water fowls. It is notable as being the only wild duck which remains naturally with us during the summer. A few Mallards and Black Ducks on the prairies, and belated pairs of several other species breed within the United States, but the Wood Duck is here at home. It seeks retired wooded streams or lakes, and in a quiet nook finds some hole within a few hundred feet of the water, where a dead limb has decayed, which may easily be cleaned out and made fit for a nest, where it may rear its young. The pair are devoted nurses, and a prettier sight can hardly be imagined than such a family, as they scoot about among the leaves of aquatic plants hunting for seeds, water insects, and minute shell-fish. They breed but once, and the young are able to fly soon after midsummer. Their geographical range is from Texas to the St. Lawrence and Columbia Rivers. This duck seldom winters further north than Maryland, and it is protected by law from reckless sportsmen during the summer months. As the country becomes settled, we must expect to see it gradually disappear, but its extinction need not be anticipated, especially as it is easily domesticated; where its natural habits are studied and accommodated, it breeds and does well in confinement, if pinioned, but has a permanent tendency to roam and return to the wild state unless its wings are cut. It loses its brilliant plumage also, to a considerable degree, unless it be bred in a half-wild state, and can get its natural, wild food. When these conditions are provided, though it may be tame enough to feed from the hand and run with other ducks in the yard during the winter, it will breed freely if unmolested.

Ornamental Shrubs.—The Bladder Sennas.

The Bladder Sennas, or *Colutcas*, are desirable in a collection of shrubbery, as they are of rapid growth, and though not particularly showy, are pleasing both in flower and in fruit.—

BLADDER SENNA.—(*Colutea Haleppica.*)

They belong to the Leguminosæ, or Pulse Family, and are nearly related to the Locust. The flowers are borne in small clusters in the axil of each leaf, and are of the shape and size shown in the engraving. The flowers are succeeded by thin, bladdery pods, which look as if they had been inflated; these, when suddenly pressed, burst with a small report. The pods being usually of a reddish color, the shrub is quite attractive in fruit. The leaves have been used as a substitute for senna, a circumstance which, together with the bladder-like character of the pods, has given the popular name. The origin of *Colutea*, the botanical name of the genus, is unknown. Several species are given in the books, most of which are probably varieties of *Colutea arborescens*, the common Bladder Senna of Southern Europe. Our engraving is taken from the one known as the Aleppo Bladder Senna, *Colutea Haleppica.*

The Elegant Humea.

In the ornamentation of the Flower Garden at Central Park, the Humea is introduced with fine effect. The engraving which we present, while it gives the form and habit of the plant, cannot convey a proper idea of its real beauty. One must imagine a plant of from four to eight feet in hight, with its gracefully pendent branches stirred by the breeze, and crowded with minute crimson or purplish flowers, to have an idea of its elegance. The plant belongs to the Composite Family; its heads of flowers are very small, and covered by a colored involucre, which is the showy part of the flower. The flowers have the dry, papery character of the Rhodanthe and others of the "Everlastings," and like them may be used for winter bouquets. This Humea is no novelty, as it was introduced into cultivation from Australia in 1800; still it is, in this country at least, very rarely seen. The reason it is so seldom grown, is probably due to the fact that it is a biennial. Our people are generally too impatient, to grow a plant a whole year in hope of its flowering the next; and in the desire for immediate returns, they overlook many beautiful things. The seeds are sown in September, and the young plants, when large enough, are potted singly, and are kept in the greenhouse all winter. In spring they are turned out into a rich border or bed, and usually come into flower in July. The plants may be put in groups of several, but well-grown specimens placed singly upon the lawn produce a fine effect. At flowering time the leaves die away, and the plant looks naked at the base, a defect which may be concealed by setting some other plants around it. The young Humeas, during the first year, have so strong a resemblance to tobacco, that several have mistaken our young plants for "the weed." Unlike that, the leaves of the Humea have a spicy fragrance, compared by some to that of cinnamon. The genus was named in honor of Lady Hume.

THE ELEGANT HUMEA.—(*Humea elegans.*)

The Culture of Spinach.

BY PETER HENDERSON.

As September is the time in this region for sowing the winter and spring crop of spinach, a few suggestions may be useful to your readers. Any soil that will grow a good corn crop, will grow spinach, though, as is the case with all other vegetables in which the leaf or stem is the part used, the land can hardly be made too rich. Our practice is to grow it on our best soils, applying not less than 50 tons of well-rotted stable manure to the acre, or, in lieu of stable manure, one ton of bone-dust; or about 1,200 lbs. guano, sown after plowing, and deeply harrowed in.—The rows are made with the ordinary garden "marker," at the distance of 12 or 15 inches apart. The seed is sown rather thickly, we prefer to do it always by hand, using about 10 to 15 lbs. per acre; when thickly sown, the plants can be thinned out so that a much larger yield will be given. We sow here from the 5th to the 15th of September, and quite frequently sell, by thinning out, 50 or 75 barrels from an acre, which usually, in October and November, sells for $2 per barrel. This thinning out, which is done by cutting out the plants where thickest with a knife, if carefully performed, does not at all injure the main crop, which is to stand over winter until spring. I may here caution the inexperienced of the necessity of treading down the soil on the seed, if the land is dry; the crop is often ruined by the want of this precaution, in continued hot, dry spells that are frequent with us during September. If the soil is left loose, the hot air shrivels up the seed so that it will never germinate. If a heavy roller is not at hand, the best way is to tread in each row with the feet. The same precaution is necessary in the sowing for cabbage and lettuce plants; at this season these are often lost from the same cause. There has some question arisen of late whether the round or prickly seeded Spinach is the best; as far as I can judge, it makes but little difference which kind is used, though we use the round almost exclusively, as it is the easiest to sow. The price of Spinach in the New York market, last year in February, for a few days, reached $10 per barrel, although the average for the spring months of April and May, (its regular time of selling,) was not more than $3 per barrel, but fair crops give a yield of 200 barrels per acre; at a high estimate, the expenses

will not exceed $300 per acre, so that it is safe to claim a net profit of $300, although extraordinary crops often do much more than this. A near neighbor of mine realized $900 from three-quarters of an acre last spring, getting the land cleared early enough in May to succeed the Spinach with a crop of Flat Dutch Cabbage.—Spinach is hardy enough to grow in almost any part of the country; but in districts where the thermometer falls below zero, it is necessary to cover it up about Christmas with hay, straw, or leaves, to the depth of 2 or 3 inches; it is best done just as a snow storm is setting in, as the snow settles down the covering, and keeps it from blowing off. Spinach is yet comparatively little grown for our Northern markets at the South, but no doubt soon will be; in such latitudes as Charleston and Savannah, it should be sown in October and November, and would be in fine order for use in February. At this cool season it could be shipped with safety, as it will remain in good condition for three or four days if packed, and would command a rapid sale at the time when our northern crops are still frozen solid. There is another vegetable but little known outside of New York, which is called

German Sprouts, properly *Siberian Kale;* its cultivation is identical with that of Spinach, except that from 2 to 3 lbs. of seed are sufficient for an acre. It sells at nearly the same rates, and is used in the same way; hundreds of acres of Sprouts are grown in the vicinity of New York City (on Long Island and New Jersey). It is mainly used by our German population, who show their good taste in preferring it to heading cabbage, of which it is only a variety.—Sprouts, like Spinach, might also be successfully grown at the South; though I doubt if they would bring as high a price early in the season.

Fruit Ladders.

In years of plenty it is only the best fruit that brings good prices. One step towards having good fruit is to secure careful picking, and to this end it is necessary to have a sufficient supply of convenient ladders. For low trees, step-ladders will be found serviceable. Fig. 2 gives the ordinary step-ladder used in the peach orchards of Delaware. It is made of two boards 10 feet long, 6 inches wide, and 1 inch thick for the sides; the steps are of the same material, let into grooves in the side pieces. At the top is a board about 10 inches wide, upon which the basket stands. The support is of two narrow strips, strengthened by cross-bars; this is attached to the steps by an iron rod passing through its ends, and through the side pieces.—

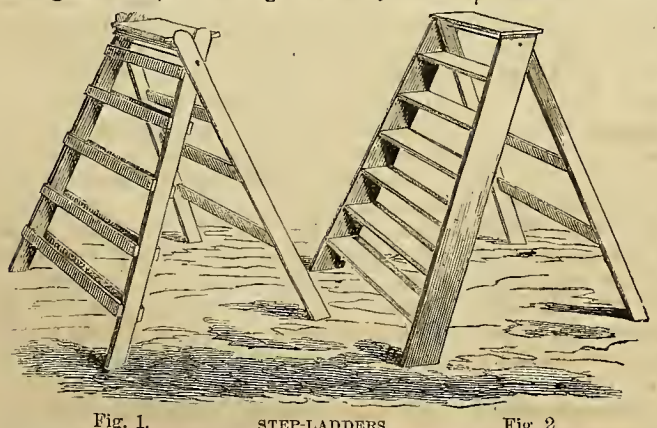


Fig. 1. STEP-LADDERS. Fig. 2.

A cheaper ladder is made of four pieces of shingling lath. Two of these have strips of the same material nailed opposite each other for steps, as in figure 1. The top step has a board nailed to it to receive the basket. The other two pieces are made to serve as supports as shown in the figure. In both these ladders the bottom is wider than the top, in order that they may stand firmly. It is often the case that ladders much taller than these are required. A common ladder, which should have iron points

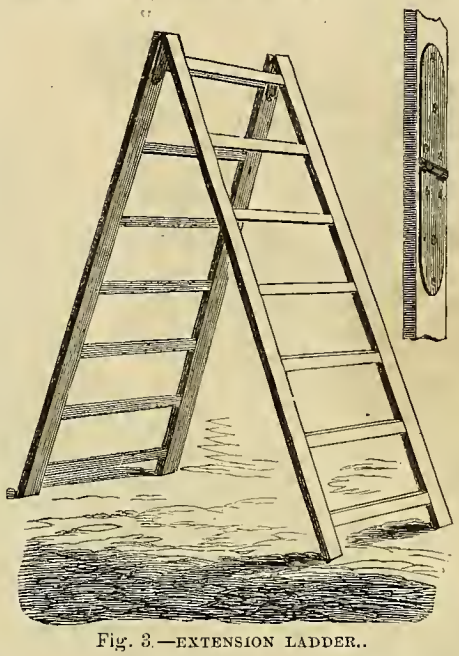


Fig. 3.—EXTENSION LADDER..

at the bottom of each side piece, may be so guyed with ropes as to be perfectly safe. It takes considerable time to change the position of such a ladder, and it will be found more convenient to support it by means of wooden stays of a proper length. In September 1868, and January 1869, we illustrated two very efficient methods of doing this. Another form of ladder is proposed by Mr. George H. Russel, which is shown in figure 3. It is really two ladders hinged together, and may be used by two persons at once. The dimensions are: side pieces 9 feet long and 3 by 1½ inches. Width of ladder 1 foot 9 inches, distance between the rounds, 1 foot 4 inches. Long hinges of malleable iron are used to fasten the two parts together, as shown at the right hand of the engraving. The basket can be placed upon the upper two rounds. By opening out this, and using it with the hinges down, it will answer as a single ladder.

In Our Garden.

[The following letter from Galen Oderkirk contains numerous good suggestions, but in presenting it we must dissent from the writer's views in regard to the introduction of the Onion Slug. We do not think it could have easily been introduced with the seed.—EDS.]

During the long drouth we have experienced here in Wayne Co., N. Y., nothing in our gardens has excelled the cucumbers. I attribute this to the fact that we transplant to rows rather than hills. The seed was started upon sods three inches square. It germinated in the hot-house about the twenty-fifth of April, and the plants have so flourished that we had cucumbers upon the fourth of July. The rows are five feet apart, and the vines are at intervals of three feet. We prefer sprinkling our fertilizers along the rows, to manuring in hills, or beneath each plant. Had we reared the vines upon hills in the usual manner, they would have dried out in such a drouth as they have experienced.

For early cabbage we plant the Winnigstadt, with a few Early York, and some new varieties for trial. The Winnigstadt being larger and tighter-leaved than any other variety, brings a better price, or at least finds a more ready sale than other early varieties. Between our rows of cabbage plants we set lettuce and early radishes, which mature without molesting the cabbages, and can be out of the way by the tenth of July. Since that period we have harrowed the cabbages and by aid of the rain they seem beyond injury from any insects. The latter have not troubled us much this season; perhaps owing to a superabundance of lime and salt in the ground.

In the current season we have had among our onions a pest which defied our lime and salt, or suds and tar-water,—an Onion Slug. We have heard much of this noxious mollusk, but we have raised onions very successfully for fifteen years, and never experienced this pest. Why? Without doubt for the reason that we had *pure seed* to begin with, and have raised our own ever since, until last year. The present season we bought seed from Mass. containing these slugs in *embryo*. Perhaps if we had fumigated the seed it would have been different; but as it is, as much labor has been spent for nothing as would have resulted, other things being as usual, in four hundred bushels of onions more than we will have. We have sown turnips in the long gaps where the slugs worked ruin to the onions. The turnip seed had no larvæ in it; the slugs are done with their work, and we live in hope of a crop from the rich, moist soil. But we caution purchasers to soak in copperas water or fumigate their seeds when there is the least apprehension of results like the one we experience. We almost always raise our own seeds. Onions as a specialty, we rely upon, as they usually have resulted in good profits. They have always brought fifty cents per bushel, and sometimes $2. They are more profitable at fifty cents than potatoes. Early peas and beans have been very prolific with us; so also have salad, beets, and early onion sets. The raspberries in this locality have been as plenty as last season. Prices have averaged less than seven and a half cents. The time, toil, and expense of producing and marketing a quart of berries are more than this sum, with the majority who raise raspberries. The Doolittle variety has been a drug on the market, selling as low as at five cents a quart. Our fruit-growers here have as yet, I blush to own it, not associated together, either in keeping prices to a profitable level or in assembling to interchange ideas upon the subjects connected with their business. Enthusiastic writers,—who often judge of the fitness of a locality from one unexceptional season,—have praised our district as of the highest excellence for small fruits. Nearly every one has therefore entered the business. If there were association among us sufficient to demand and require profitable results from investment and labor, perhaps no better section exists for fruit growing than this. But I think many have been induced to spend labor and means upon a business which must prove, as it has again and again proved, unremunerative. Indiscriminate praise of locality, conceit, and entire lack of association, among horticulturists, are productive of failure everywhere. I hope

those who read this will do something towards association in every section lacking in this respect. Experience universally teaches that "union is strength." The only question is how to unite. What I have said in relation to raspberries is equally true of strawberries, and other small fruits in this section.

Gardens or Greenhouses upon the Roof.

BY SAMUEL B. PARSONS.

Some ten years ago we suggested an idea of roof gardens, which was conveyed by the *Agriculturist* to its numerous readers. Since that time the almost universal adoption of the Mansard roof has increased the availability of our plan, and has led to numerous inquiries which make necessary an improved description. Time has not diminished our sense of the value of an adaptation of this idea to city buildings where land is almost fabulous in price, and the air in which to build is free of cost.

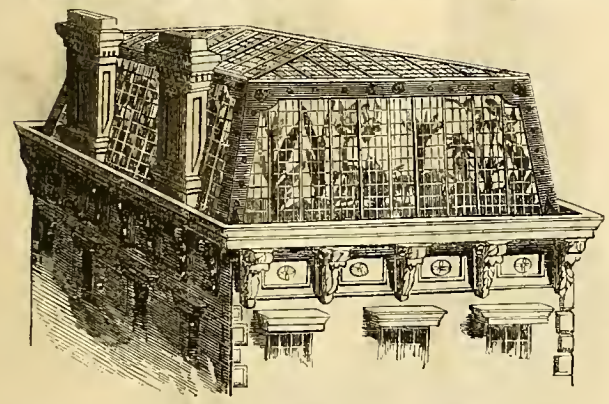


Fig. 1.—MANSARD ROOF CONVERTED INTO A GREENHOUSE.

Marvellous accounts have come down to us of the beauty of the hanging gardens of Babylon, and the lavish expenditure upon them by the monarchs of that magnificent and wonderful city. We think of their beauty as something unattainable now, and scarcely realize that in any of our cities they can be rivaled without extraordinary expenditure. It is within the means of any man who builds a house to rent for $800 per year, to have a garden on the roof which, during the summer can be filled with the most luscious grapes, peaches, plums, etc., and in the winter with plants, the beauty of the flowers of which will afford a charm far beyond the trifling cost of their maintenance.

A glass roof costs very little more than a tin or slate one. Let the roof, therefore, be covered with glass, and let the garret floor be covered with concrete, sloping gently from the center to the sides, around which a slight depression in the floor can carry the moisture or drip into the leaders which pass from the roof of every house to the ground. With this slight expense, a perfect greenhouse may be had. A Mansard-roof glazed in this manner is shown in figure 1. Now for heating: Every one knows that the upper rooms of his house are so warm from the ascending heat of his furnace that registers are scarcely needed. Let the doors be kept open and the waste heat of the house will keep the garret at the highest desirable temperature. Thus the greenhouse is heated without any extra trouble or expenditure.

Its care would be a pleasant recreation for any of the family, provided they enjoy working among plants as much as a friend of ours, who would leave the counting-house and its engrossing cares at a reasonable hour in the afternoon, and after leisurely dining, would put on an apron and go among his camellias, potting and trimming, and enjoying their beauty while giving them those nice manipulations which only a true lover of flowers knows how to administer. A lady fresh from such occupations would lend new charms to the evening hours; and the memory of her children in the upper air would always have power to bring a sparkle to her eye or a glad expression to her lip. And then the pleasure of cutting one's own flowers or sending to a friend one's own roses or camellias or Black Hamburg grapes, is not to be despised. In case the demands of the counting-house or the drawing-room are too engrossing to allow any attention to flowers, there are numerous florists in every city who would be glad to keep such a place in perfect order for a very moderate compensation.

If a little extra strength is given to the beams which sustain the upper story, sufficient earth could be placed there to lay out the whole space of twenty-five by fifty feet as a garden, with winding walks, delightful carpets of moss and roses, camellias, etc., planted in the soil, as in figure 2. By this mode the illusion will be complete, and in the middle of winter one may have a tropical landscape. Those who have visited the greenhouses of Prince Demidoff, at Florence, will have some conception of the beauty of such an arrangement of the plants.

But for fruit as well as flower culture the use of pots will be preferable. Let us see what can be done with these. The superficial area of nearly every good city house is more than twelve hundred square feet. Deducting the space required for the walks and the stairway, there will be more than eight hundred square feet on which pots can be placed.—By the most approved mode of pruning for pot culture, the diameter of foliage in a fruit-tree should not exceed the diameter of the pot. We could thus place eight hundred fruit-trees in the garden, but in order to give abundant room and air, we will estimate for only two hundred. If one wishes no flowers, but fruit only, he can have forced peaches and nectarines at a season when he cannot buy them of the confectioner for less than a dollar each. The two hundred trees ought readily to yield a crop of a thousand peaches. If one's taste runs on strawberries these will yield a good return.

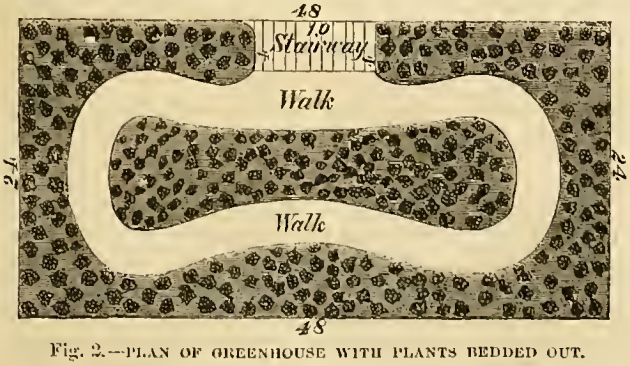


Fig. 2.—PLAN OF GREENHOUSE WITH PLANTS BEDDED OUT.

But if it be desired to have the house filled with flowers through the winter, we cannot cultivate forced fruit. We can, however, have flowers, stone fruit, and Black Hamburg grapes in succession. If the house has been filled with flowering plants in the winter, and there is plenty of yard room, they can be taken out and arranged in groups in the yard as soon as all danger of frost is over. The house can then be filled with peaches, plums, and nectarines in pots, which can be obtained of the nurserymen ready for fruiting, or prepared the previous year by the florist having charge of the house, and kept in the cellar during the winter. These can remain in the house until the fruit has attained sufficient size to be safe from the curculio, when they also can be grouped in the yard where they will grow, and ripen early and well. Their place in the house can then be supplied with grapes in pots which have been retarded by being kept in a cool, dark place in the cellar. These will then bear abundantly during the summer, and, before the flowering plants require to be taken in the ensuing autumn, will duly respond to the tiller in Black Hamburgs and Muscats. Two pounds to each vine, or four hundred pounds of grapes would be a moderate estimate for the space mentioned.

Both stone fruits and grapes are easily managed, and a man of ordinary intelligence could soon learn to grow them even if his life has been passed in the midst of dry goods or hardware; if, however, his own skill fails him, florists are always attainable. Here then are new luxuries—flowers, peaches, and grapes—within the reach of every man of moderate means.

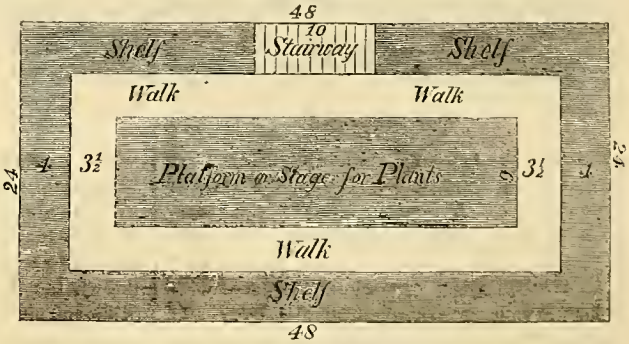


Fig. 3.—PLAN OF GREENHOUSE WITH SHELVES AND STAND.

If the capabilities of this plan and its economy were thoroughly understood by architects and proprietors, the time would soon come when a roof garden would be considered just as essential an appendage to a house as a bath-room. The demand for care takers would bring forward a host of candidates for this new branch of industry, and it might furnish an excellent and remunerative vocation for women.

THE TWELVE-SPOTTED SQUASH-BEETLE.—Last month we gave on page 302, an engraving and some account of the Twelve-Spotted Squash-Beetle—*Diabrotica 12 punctata*. Heretofore we had only known the perfect insects, and finding them so destructive we had picked them off before they had a chance to propagate. This year the in-

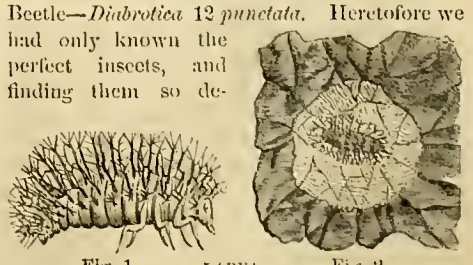


Fig. 1. LARVA. Fig. 2.

BEAR-GRASS.—(*Yucca filamentosa.*)

sects came in too great numbers to be disposed of by hand-picking, and they produced larvæ in abundance, which are quite equal in their ravages to their troublesome parents. The full-grown larva, or "grub," is about half an inch long, of a lemon-yellow color, and covered with spines, which are yellow near the body and black above. These are themselves armed with short bristles. As the larva has six of these spines upon each ring of its body, it presents a formidable appearance under the magnifier. The engraving (fig. 1,) shows the larva of twice the natural size. It eats the cellular tissue of the leaves, in circular patches, an inch or more in diameter, leaving the net-work of fibres, as shown in fig. 2. They seem to work upon either side of the leaf indiscriminately. We made an application of powdered white hellebore to the vines, without any marked effect, and have since resorted to hand-picking.

Tying Material—The Bear-grass, or Adam's Needle.—(*Yucca filamentosa.*)

The commonest of the Yuccas is the *Y. filamentosa*, commonly known as Bear-grass and Adam's Needle, and in some localities called Cliff-Lily and Gardener's Twine. It is a native plant, being found wild as far north as Virginia, and is quite common further south. It has long been known in our gardens, and of late years has become quite popular; fine old specimens being highly ornamental for their leaves, and surpassingly beautiful when they throw up their enormous panicles of white flowers. Our purpose is, to speak of it as a useful rather than as an ornamental plant. An article on tying materials on page 261 (July), induced Mr. Jas. T. Worthington, of Chillicothe, O., to present the claims of the Yucca as a superior article for bands and strings. Mr. W. considers it of great value, not only to the gardener but to the farmer, and advocates its cultivation for its useful leaves. He states that when the plant is well established, or the third year after planting out a shoot or sucker, hundreds of leaves may be removed without injury. He sets the plants four feet apart each way. Mr. Worthington, in a communication to the Scioto Gazette, upon the same subject, says: "For all purposes where a string is needed, from a bouquet to a bacon ham, including bands for grape-vines and shocks of corn, and for garden vegetables, it has no equal and requires only to be generally known to be universally cultivated." We have known the Yucca to be used in some of the Missouri vineyards, and thank Mr. Worthington for calling attention to its availability for other purposes. Plants are sold by most nurserymen, the catalogue price being 50 cents each.

WHITE-SPOTTED CALLA.—(*Richardia albo-maculata.*)

The White-spotted Calla.
(*Richardia albo-maculata.*)

Last year we received from Messrs. Bennett & Davidson, Florists, of Flatbush, L. I., a specimen of a Calla quite unlike the well-known Ethiopian Calla, and which was ascertained to be the White-spotted Calla (*Richardia albo-maculata*). The present one seems to be but little known, and having grown it for two seasons we think it merits more attention than it has received. The plant is smaller than the common Calla, growing about two feet high, and though it has a general resemblance to that, it will be seen from the engraving that the leaves are different in shape and are distinctly marked with numerous white spots. The spots, though they appear quite white by reflected light, when held between the eye and the light are found to be translucent. The flower, or more properly, spathe, the shape of which is given in the engraving, differs in form and in size from that of the common species. It is white without, but purple at the base within. The plant is a summer-flowering one; planted out in the open ground it has flourished in ordinary garden soil, without any care in watering, and has thrown up an abundance of foliage and a succession of flowers. It produces seed freely, though it multiplies so readily by offsets there is no need of growing it from the seed. The thick rootstock, or "bulb," may be kept through the winter, in a dormant state in a box of dry earth, in a greenhouse or other place where there is no danger of frost. The plant is from Natal, and was first described by Sir Wm. Hooker, in 1860. A recent French work mentions it as a spotted variety of the *Richardia Africana*, the common Calla, which is an error, as it is distinct from that species in several important particulars.

Shallots.—(*Allium Æscalonicum.*)

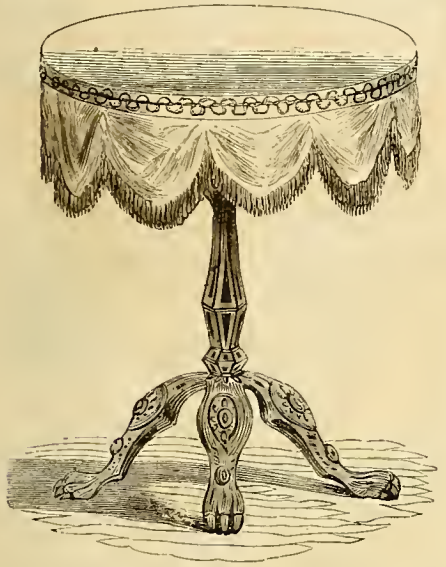
The early "green onions" which appear in our city markets are properly Shallots—a different species from the common onion. The mature bulbs are smaller, oblong in shape, and made up of several smaller bulbs, which are enclosed in a skin like that of an onion. They keep with difficulty, as they are very apt to start into growth. In flavor they are stronger than the onion. With us they are chiefly used in the green state; but abroad they are employed when mature for flavoring soups, etc. Being perfectly hardy, shallots are best planted in September. The bulbs are broken up, and the separate sets, or "cloves," are planted in good soil, in rows a foot apart, the sets being six inches apart. In planting they need to be simply pressed into the soil with the fingers. They require no protection during the winter.

THE HOUSEHOLD.

☞ *(For other Household Items, see "Basket" pages.)*

A Draped Center-Table or Stand.

A friend who contrives to have things make a handsome appearance with a moderate outlay, gives us a drawing of the manner in which she arranged a center-table. The standard is such as are used for marble-topped tables, and was procured of a cabinet-maker. Instead of a marble top, one of pine was used, which was smoothly covered with green furniture rep, neatly tacked on. A curtain



DRAPED CENTER-TABLE.

of the same material, a quarter of a yard deep, and made a little full, has a fringe at its lower edge, and is tacked by its upper edge to the table top. Gimp of a color to match is used to cover and hide the edges and tacks. The curtain is caught up in plaited festoons every quarter of a yard. Other materials may be used, and other colors to harmonize with the surroundings. By the exercise of proper taste and skill, one may make very pretty chamber sets by draping very rough kinds of furniture.

Nursing the Sick.

BY FAITH ROCHESTER.

No woman has all the womanly accomplishments who is unqualified to make her presence in the sick-room a blessing to the sufferer. All rules for behavior toward sick or well may be summed up by the Golden Rule—do as you would be done by—but in the absence of experience it is well to have some definite directions.

You can hardly be too careful about neatness and order. The sick-room should be kept perfectly tidy. Especially should all soiled garments and utensils be removed and cleansed before a second use. The towels and napkins should be clean, and the food offered should be arranged to please the eye. If any thing is askew about the curtains or table cover or rugs, straighten it at once, or the invalid will have to do it mentally over and over again. To prevent the patient from hunting out every case of bad matching in the figure of the wall-paper, or wearing the mind with observation of every defect in the furniture, bring in fresh bouquets of flowers or other objects upon which the eye loves to linger. Think of this in arranging your dress. Avoid glaring colors and noisy fabrics, and put on your garments with care. The patient's bed should be kept as clean and orderly as possible. Straighten the coverings and smooth the pillows quietly, whenever they get disordered, and in making the bed at the regular periods, do it with care and thoroughness. If it is impossible to change the bed linen daily, try to have two sets and alternate their use, so as to have each set aired well when taken off at night and morning.

Let all the work of the sick-room be done unostentatiously, so that, to the patient, everything will seem to be moving along smoothly and easily. Do not question invalids when you can avoid it. Get your directions from the physician in attendance, and carry them out without criticism. If you give medicine, be punctual, and say nothing about it until you have it neatly prepared, and afterwards put cups, spoons and phials out of sight. Keep medicine beyond the reach of children.

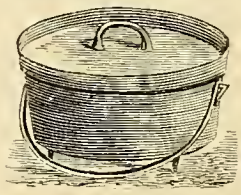
In giving baths, be gentle but use so firm a hand that your patient will understand that you are self-possessed, and need feel no concern. In giving the patient a general sponge bath, wash only a part at a time—an arm for instance—and wipe it before proceeding further, keeping the rest of the body covered. Do not use water that is uncomfortably cool to the invalid. If the feet are cool, a warm foot bath is very comforting, and may be given to the patient in bed, by using a small, shallow tub, the sick person lying on the back with the knees bent—keeping the whole covered with a blanket; and after leaving the feet in the warm water about fifteen minutes, rub with a towel wet in cool water (to contract the relaxed pores to their natural state, and so prevent catching cold), and then wipe well with a dry towel. A jug filled with hot water and rolled up in flannel is the best foot-warmer to put in bed.

If you know what healthful dishes will please your patient, prepare them promptly without previous consultation. Observe the greatest delicacy in all this. A nurse who would taste the invalid's food, or cool it with her breath, ought not to be tolerated. Never season an invalid's food highly, and remember that melted butter is one of the most indigestible things you can offer. Cream is better than butter on toast or roasted potatoes. There is some danger of using toast too freely. It is more constipating than plain bread, and a person confined to the bed or to the room is more likely to suffer from this than one who has out-door exercise. Plain, subacid fruit, and bread or gems made of good Graham flour (minus a part of the bran) are the best articles of diet; but a variety can be made by using sometimes the various delicate preparations of starch, tapioca, sago, rice, etc. It is hard for a sick person to wait long for food when hungry. Don't keep your patient *waiting* for any thing if you can help it. Minutes seem like hours to an invalid at such times. Do not rattle your newspaper, nor creak your chair, nor wear noisy shoes. Speak in gentle tones, and do not talk too much. Do not allow your patient to talk long at a time, and let the conversation take a lively turn. Better not discuss diseases. Do your best to keep long-faced visitors away. Have no whispering in the room or just outside the door. Unless in extreme cases, have the room dark and quiet, and cool at night. Look out for good ventilation, and air the mattrass and bedding frequently. Let in all the sunshine you can without hurting the invalid's eyes. Be as much of a sunbeam as possible yourself, without being frivolous, and with patience and faithfulness you may be able to do a great amount of good.

The Bake-kettle, or Skillet.

BY AN "OLD FOGY."

When cooking stoves came in, the bake-kettle, or covered skillet, went out, and with it went a large part of what was good in our American cookery. How many of your readers ever saw a bake-kettle? Probably only those who enjoy the blessing of a wood fire to cook by. Just send an artist down to the back woods of Maine or away "out west," and have a drawing made of this most capital kitchen utensil. [We have had the drawing made, and did not have to go so far from home for it.—ED.] "Pioneers" will know what I mean without a drawing. It is a shallow kettle with a lid, which has a turned-up edge, and upon which coals are placed; and the thing to be cooked is "between two fires." Those who are roughing it in log cabins or in camp, know what a useful thing it is. In it the bread is baked, meat roasted or fried, coffee browned, dish-water heated—in short, it is the one thing handy to have in the house. I say, much good cooking disappeared with the bake-kettle. It allowed food to be cooked as it seldom is by the stove—long-continued, slow cooking, with all the juices and flavors kept in. Were there ever such chicken and veal pies as our mothers used to make in the bake-kettle? We have nowadays what is called roast veal—half burned and wholly spoiled in the stove oven. But



BAKE-KETTLE.

stuff a knuckle of veal and put it in the bake-kettle and let it "sizzle" with fire above and below for three or four hours. It cooks quietly and slowly, all the moisture is retained, and comes out not only a delicious, but a digestible morsel. The French who, say what you will, bring more skill and common sense to the subject of cooking than all the rest of the world, *braise* a certain class of dishes, and they have for the purpose a *braisier*, or braising-pan, which is really only the old bake-kettle Frenchified. Ducks, pigeons, and fowls, even if tough, may be admirably cooked in the bake-kettle. Our people have much to learn about the advantages of slow and long-continued cooking—a treatment which is hardly practicable in a stove oven, as that dries as well as cooks. The "modern improvements" in the way of stoves and ranges have resulted in a deteriorated cookery. Let us go back to the days of our grandmothers so far as to restore the bake-kettle to the kitchen—or, if it will be fancied better, we will call it a "*braisier*."

Something about Pickles.

It is a little singular that a large share of the questions put to the Household Department at this season should be about an article of food which is not nourishing—pickles, which to the best stomachs are only appetizing and to the weakest positively injurious. Still people will eat pickles, and whatever our "physiological" friends may say, we do not doubt that things so generally craved have some use in the animal economy. When our boys in the army had the chronic diarrhœa, our army surgeons usually allowed them to eat pickles and other things, that under ordinary circumstances would be considered fatal, and to the surprise of everybody the hopeless patients often recovered. So without discussing the dietetics of the matter, we accept pickles as a fact. To look at the matter philosophically, a pickle is a mere vegetable sponge to hold vinegar. Any vegetable tissue that is not so fibrous or tough as to be unpleasant to masticate, and which has no disagreeable flavor of its own, will answer for pickling. If the article pickled has an acceptable flavor of its own, all the better. It is the possession of this that makes the cucumber the most popular of all pickles. Vegetables which have no marked taste, such as green muskmelons, are made flavorous by the free use of spices—like the sailor's wonderful stone, which would make a nice soup when the farmer's wife allowed him to gather the odds and ends of her kitchen and garden to boil with it. It is customary to salt pickles before putting them into vinegar. Why do we?—It is not for the purpose of flavoring them with salt, for this can be added to the vinegar. This matter of salting pickles brings up the question of *osmose*, which we cannot find space to discuss. Briefly, when a fresh vegetable is placed in salt and water, an interchange takes place between the juices contained in the tissues of the vegetable and the brine by which it is surrounded. The natural juices pass out and the brine passes into the vegetable; the brine being denser, it, according to a well-known law, passes in more slowly than the juices of the vegetable pass out, and the salted things shrivel. When salted pickles are placed in water the case is reversed, their shriveled tissues are full of brine, much heavier than the water by which they are surrounded, the brine passes out, and the

water goes in and restores the plumpness. Soaked pickles with their tissues full of water being put into vinegar readily become penetrated by that liquid. The question of salting pickles has nothing to do with flavor, as the finest pickles are those from which the salt is most completely soaked. One of the most frequent questions is, "How can I make pickles like those put up at the factories?" —We have answered this more than once, but will repeat, that the pickles referred to are put up in colorless vinegar made from whiskey. Diluted whiskey will make a vinegar which is almost colorless and of a pure sour taste. Cider makes a vinegar which has a color, it is true, but a most agreeable flavor. Home-made pickles should be prepared with regard to flavor rather than appearance. As a general rule, vegetables to be pickled are first put into brine, then soaked to freshen them, and then placed in vinegar, which may be spiced or not, according to taste. One point is to be noticed: when freshened pickles are put into not very strong vinegar, the water with which their tissues are filled, so weakens the vinegar that the pickles are not only not sour enough to the taste, but not enough so to keep well. It is not necessary to enumerate the things that may be pickled, as there are but few fruits or vegetables that may not be so treated—pickled peaches are delicious and pickled purslane is not to be despised—a wide range surely. Some good housekeepers have, besides the regular cucumber and other standard pickles, a jar of

MIXED, OR INDIAN PICKLE.—The basis of this is usually sliced cabbage, and cauliflower broken into bits and put into brine. After these are ready, they are covered with spiced vinegar; and then such pickle materials, fruits, or vegetables as occur during the season, are added from time to time, taking care that the newly added things are covered by the vinegar. At the close of the season the vinegar is drained off, heated to the boiling point, and poured over the pickles; this is repeated two or three times, when the pickles are stored away for use, and are usually better the second year than the first. In the making of the spiced vinegar, probably no two will agree. As a suggestion we give two recipes. The various directions differ greatly, the chief object seems to be to get in enough spice. In looking them over, we are reminded of the toper's directions for making punch, "too much of lemons, sugar and whiskey, and not enough water."—One recipe gives: Vinegar, 6 pints; salt, ½ lb.; bruised ginger root and whole mustard seed, 2 oz. each; mace, 1 oz.; shallots, ½ lb.; Cayenne pepper, a dessert spoonful, and some sliced horseradish. Simmer together for a few minutes, then put into a jar and cover close. Another, claimed to be "very superior," directs for each gallon of vinegar 6 cloves of garlic, 12 shallots, 2 sticks of sliced horseradish, 4 oz. bruised ginger, 2 oz. whole black pepper, 1 oz. allspice, 12 cloves, ¼ oz. Cayenne pepper, 2 oz. mustard seed, ¼ lb. mustard (ground) and 1 oz. turmeric. All the above, except the mustard and turmeric, are put into the jar with cabbage, cauliflower, and other pickle vegetables, and the vinegar boiled and poured over them. The ground mustard and turmeric are to be made into a paste, with cold vinegar added.

A Farmer's Holiday.

BY CONNECTICUT.

We do not mean the fair when we speak of a farmer's holiday. They are good, and we advise every farmer and his wife and children to go once a year and take their best products with them. But if you take up your herd of six best Ayrshires, and Joe takes the working cattle, and Ben takes the stallion, and your wife takes the butter, and Susan takes the bread and the bedquilt, and the flowers, you will have a pretty busy time of it, and will feel when night comes that the fair is so much like work, that you cannot call it play. A picnic will do. A Sabbath-school picnic if you please—if nobody has to make a formal speech—or to be bored with one. But a day of absolute rest we insist upon, as one of the best things that can befall a farming community. We work hard; we are isolated; we have too little social enjoyment; and some of us have almost forgotten how it would seem to be turned into our own green fields and forests with no care upon our minds. Now, to have a good time, we want some pleasant spot as the place of gathering—a lake with wooded banks, the sea shore, a grove, a hill or mountain with berries or nuts, or some amusement for the children and young folks. It should not be so far off or so expensive to reach that any will be deterred from going. Let every family take along its own provisions and make common stock at the gathering. Then we want congenial society; men and women of like tastes and sympathies, so that there shall be no worry about dress or grammar; no stiffness or stilted propriety. Then the less management the thing has, the better. You want some one or more to take the responsibility of appointing the time and the place, and of giving the invitations; and then let the amusements be determined by the tastes of the company. If you cannot trust the company to arrange this matter, you should not be of the party. An excursion by rail or steamer is a very good thing; as then there are no horses to be fed at the place of gathering, and there is no care except for the picnic baskets. The entire change of scene, the ride or sail, is a great refreshment. But in this case the company will have to be much larger to make the thing pay, and the manager will have to take much more responsibility. We lately fell upon a party of this kind encamped for the day in a beautiful grove upon the shores of one of the lakes in which New England abounds. The railroad cars dropped the company at the grove which had been conveniently fitted up for such occasions. There was abundant shade, green grass, nice springs, flowers, and rustic seats and tables for a multitude. We hail the multiplication of these places of rural resort, away from cities and grog shops, as a good omen of our times. Let us have more of Nature and occasionally a day of rest.

Domestic Wines.

Here is quite a file of letters asking how to make wine of blackberries, elderberries, strawberries, and —of all things in the world, tomatoes. We think that, taken as a whole, these compounds are more productive of evil than of good. All fruit juices, some with and some without the addition of sugar, will make alcoholic liquids, which are by some used "medicinally," and by others in the exercise of hospitality. Many of our readers can recollect having swallowed vile compounds of this kind rather than offend the kind hostess who presented it saying, "it is only some blackberry wine that I made myself."—Of the medicinal value of these "wines" we have strong doubts. If alcohol is needed as a remedy, which it sometimes is, but less frequently than many suppose, a physician will prescribe pure whiskey in preference to any of these domestic productions. Alcohol is the same thing, no matter how produced, and whiskey contains a nearly constant proportion of this, while the home-made "wines" may be stronger or weaker, and be more or less qualified by a greater or less amount of sugar, and aromatic or other principles contained in the fruit from which it is made. There is a great deal of nonsense about the medicinal effects of blackberry, elderberry, and other "wines." We have noticed that when these things were known to be in the house, the complaints which they are supposed to cure were of more than ordinary occurrence. That blackberry cordial, for we do not consider it a wine, may be sometimes useful we do not doubt; but put the blackberries in a jug, and cover them with whiskey and call it "tincture of blackberry," and keep it as a medicine; the sole virtue of which over and above the stimulating quality of the whiskey is due to a little astringency derived from the berries, and in this particular a handful of the blackberry root is worth a bushel of berries. So much for the medical view. As to the question of hospitality—at the present time it is the exception where wines are offered to visitors. We believe, with our present knowledge, that it is better not to offer them at all. We know that there are many who think differently. There is scarcely an Agricultural Fair but that offers premiums for Currant, Strawberry, Blackberry, Rhubarb, and other "wines." We never tasted one of these compounds that was not an abomination, and a desecration of the fruit from which it was made. If the managers of our fairs would exclude all these things they would do well. They should not be made, encouraged, nor offered to one's friends. We think that hospitality can be manifested without presenting wines or liquors to one's guests. Did we hold the opposite view, we should say that the only presentable things were pure whiskey, pure grape wine, and pure cider. Not that we advocate them, but one offered these, knows exactly what he is taking.

About the Egg-Plant.

C. Mathers writes that we speak in praise of the Egg-Plant, but do not give directions for cultivating or cooking it. It is rather late now to talk about its cultivation, but if our correspondent had looked under the head of Kitchen Garden in Hints about Work, he would have found sufficient said upon the subject. In brief, they require the same culture as tomatoes. The plants must be started in the hot-bed or in the house, and given a rich and sheltered spot in the garden. As an article of food, the fruit is much liked by those who are accustomed to it, while others positively dislike it. In this respect it is much like tomatoes. The fruit is sliced and fried, being served as a dinner or breakfast dish. It has no positive flavor, being only a rich, marrowy substance. The best way, according to our notion, is to pare the fruit, cut it into slices half an inch thick, and then salt the pieces and stack them upon a plate. In an hour or two they will have parted with considerable water. They are then to be dipped in egg and sprinkled with cracker crumbs and fried. Serve very hot. Cooked in this way they are, to our taste, very acceptable. Fried, without the covering of egg and crumbs, they take up much fat and are very indigestible. The fruit is used at any time before the seeds become hard.

Melon Mangoes.—The late, small, and smooth muskmelons are used for this pickle. Cut out a plug at the stem-end, or, as some prefer it, from the side; scrape out the contents, replace the plug and secure it with a wooden pin, and put the melons thus prepared into a strong brine. When they have been in the brine for twenty-four hours or more, they are ready for stuffing. The stuffing is made of any pickle material at hand: shredded cabbage, broken cauliflower, small onions and cucumbers, green beans, peppers, mustard seed, nasturtiums, scraped horseradish, and the like. Cabbage and the other stuffing, except the aromatics, are better for being scalded and cooled. Stuff the melons according to fancy, and then sew each plug in its place by means of a needle and coarse thread. Place the stuffed melons in a jar, add cloves, pepper, and other desired spice, and pour boiling vinegar over them. Repeat the scalding of the vinegar for three days in succession.

Tomato Pie, by Mrs. K. T. H., Sevierville, Tenn.—Take two large ripe Feejee or other Tomatoes of the same size, drop them into boiling water to remove the skin, then, with a sharp knife, cut them into thin slices, put the crust in an ordinary pie-pan, as for berry pie; cover the bottom with a layer of the Tomatoes, then a layer of sugar and butter, then of tomatoes, then of sugar and butter as before; flavor with either lemon, orange peel, or nutmeg, to the taste. Cover with the top crust, bake, and bring to the table hot—(cold tomato-pie is not good). Two very large tomatoes, two tablespoonfuls of sugar, and one of butter, are enough for one pie, baked in a pan ten inches across. If there are too much tomato, sugar, and butter put into one pie, there will be too much juice: a little practice in making will make all right.

BOYS & GIRLS' COLUMNS.

Different Ways of Eating.

A distinguished physician of our acquaintance who has occasion to examine the chests of many people, says that he gets a great deal of amusement in observing the different ways in which people put on a shirt. We find no little amusement in noticing the different ways in which people eat. Those of us who have business "down town" in the city, mostly eat at a restaurant where dozens and sometimes hundreds are taking their noon-day meal. It is curious to see the different ways in which people will go about the same operation. Some "gobble up" their food as if on a wager to see how soon they can dispose of it, and others pick at it as if looking for something disagreeable in it—and they find it too, sometimes, at restaurants. Some act as if they were the only persons at the table, and reach directly across one's

THE BOY WHO EATS WITH HIS ELBOWS.

face for salt or pepper, while others will be careful not to intrude upon their neighbors in any manner. You can always pick out the gentlemen by the way in which they regard the comfort of others. It is bad enough to see one wipe his knife on his lips and then put it into the butter, but the greatest annoyance is the man who "eats with his elbows." We mean those chaps who keep their elbows working like a fiddler. It is a real discomfort to sit next to one of these, as the frequent nudges and knocks that one gets from the industrious elbow quite destroys the enjoyment of a meal. It is not in restaurants only that we have noticed this uncouth performance, but in hotels and private families. It is not likely that those who annoy others in this way are conscious of doing so, but it is the exercise of a bad habit formed when young. We would not like to think that any of our young friends eat in this way, but if they find themselves doing so, let them try to eat the food and carry it to the mouth without spreading out the elbows; they will find it quite as easy, and they will not, in this respect at least, annoy others at the table.

The Doctor's Talks.

SOMETHING ABOUT INSECTS.

"What is this, Uncle?" said Arthur, as he brought me something for inspection. "I found it down on the tomato vines; it is a great green worm, carrying its eggs upon its back."—Many older people have very strange notions about insects, because they do not know the changes they go through, and the order in which these occur. Most of you have seen the Tomato-worm as it is called, though it is in some places known as Tobacco-worm, and in others the Potato-worm, according to the plant upon which it is found. Let us run through its history and it will serve for that of other insects, though

TOMATO-WORM AND COCOONS.

the story would have to be somewhat modified to meet all cases. In the first place there is the egg. Secondly, when the egg hatches there is produced a larva, or caterpillar. A little fellow at first, but a great feeder, and soon grows famously. After changing its skin several times, it reaches its full size, as large as one's finger, and three inches long. Having done a great deal of mischief in eating the plants, it is ready to rest; so it goes down into the ground for its winter's sleep. When it is fairly abed, it would never be taken for the same green worm. It is much reduced in size, its skin is hard and brown, and it appears to be lifeless when turned up, as it often is, by the plow or spade. This is the third stage of the insect's life, and when in this it is called a *pupa*, or *chrysalis*. Curious changes are going on in this brown pupa; for in spring it bursts open its case and out comes a large moth—which some, who do not know the difference, call a butterfly. Its great, gray wings have a spread of five inches, and it has a very long trunk with which it can suck the juices from flowers. This is the fourth or perfect state of the insect, and is called the *imago*. This lays eggs, from which proceed another lot of caterpillars, and so the changes are repeated. The larva of all insects are not caterpillars, they do not all form the pupa in the ground, for many spin *cocoons* in which the change takes place; nor are all the perfect insects—as you well know—moths, but they all go through changes similar to this. First the egg, then the larva, after this the pupa, and finally the imago, or perfect insect. As the perfect insect alone lays eggs, the caterpillar which Arthur brought could not have been "carrying its eggs upon its back," as he thought. Yet the mistake was a very natural one, as you will see by looking at the drawing I had made of the caterpillar. There they were, little white egg-shaped things, just as thick as they could stand. What were they? In order to explain it to Arthur I had to make the little talk about insects I have given you. All insects do not live on plants; some live upon the larger animals, and many make their home in their larva state *inside the bodies of other insects!* This Tomato-worm for example, which we consider as an enemy to us, on account of the injury it does our plants, has its own insect enemies. A minute fly-like insect with a sharp probe pushed a great many of its eggs into the caterpillar's body when that was quite young; these eggs hatched there, and the larvæ from them grew as the Tomato-worm grew. They did not kill it outright as you might suppose they would have done, but left it enough life to enable it to supply them with food. When these little larvæ were ready to go into the pupa state they made their way through the skin of the Tomato-worm, spun their little cocoons, in which they became pupas, and finally came out as perfect insects. Animals which live upon other animals are called parasites; and the things which Arthur thought were the eggs of the Tomato-worm were really the cocoons of one of its parasites. Should you come across a Tomato-worm in the condition I have shown in the engraving, you can put it under a tumbler and you will be very likely to catch some of the perfect little insects as they come out of the cocoons. "But what becomes of the Tomato-worm?" It dies after it has nourished its unnatural brood. It has not strength enough left to change into a perfect insect. In this case we must look upon the parasites as beneficial insects. It is very gratifying to know that we have such aid in keeping the troublesome insects from multiplying more rapidly than they do. When Arthur is old enough I intend that he shall study insects, at least enough to learn to distinguish between the beneficial and the injurious ones. Perhaps some of the boys and girls who read this would like to do the same. This will do for the first lesson.—"Where shall we find the second?"—Well, that is a difficulty. It is a great pity that there is no book about insects suitable for boys and girls. I wish some entomologist would do for the "bugs" what Doct. Gray has done for the plants in his "How Plants Grow."

An Old City.

BY "CARLETON."

It may not be the oldest city in the world, but there are not many older places than Benares. It is pronounced in three sylables with the accent on the second—Ben-*ar*-es. It is in India on the bank of the Ganges. The people who live there think that there is no river in the world like the Ganges. Its waters, they say, are purer than those of any other stream—so pure that by bathing in it they can wash off, not only the dirt from their bodies, but all sins from their souls. They think that Benares is a good city, that men who live and die there will be a great deal better off here and hereafter, than those who live and die anywhere else. It is so ancient that no one knows when it was founded, but I have no doubt it was a large place when Abraham was living, 3,800 years ago.

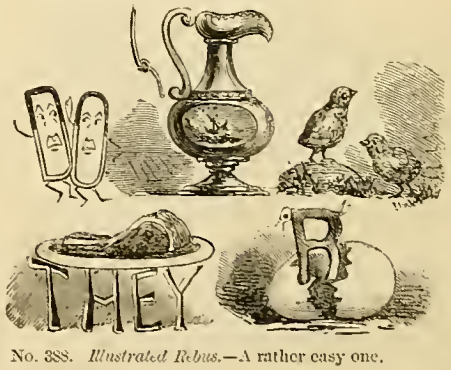
It is a wonderful place. When we read about Greece, we seem to go back to the threshold of history; but Benares had its gorgeous temples and palaces centuries before the Parthenon, that most beautiful temple of the Athenians, was built. When David was a boy tending sheep in the pastures around Bethlehem, before he went out to fight the great giant Goliath, boys and girls were playing in the streets of Benares as they are playing there to-day; and things change so slowly there that the manners and customs of the present time are pretty much as they were two or even three thousand years ago.

The city is located on the east bank of the river. Standing on the western bank you behold a magnificent sight. The river is as wide and as deep as the Ohio, and sweeps past the town with a steady current. The city extends along the bank a distance of five miles. Moored to the shore, anchored in the stream, or floating slowly past, are hundreds of boats—the queerest craft imaginable—with clumsy hulls, cumbersome rudders, large, square sails, carved stems and sterns, with bungling cabooses on the decks. Many of the boats are loaded with hay, straw, or bundles of bamboo, and as you see them from a distance you think that some haystacks from up the river must be drifting down with the tide.

Leading up from the water are flights of stone steps which are called gh-ats by the Hindoos. Above them are temples and palaces, with roofs, turrets, and minarets, some of them covered with gold—pure gold! Think of hundreds of minarets and spires gleaming in the sunshine—of flags and banners waving above the towers, and a great crowd of people with elephants and white bulls, in the streets and on the stone steps, or in the river! Monkeys are hopping here and there on the roofs of the houses, and chattering in the trees; and there are kites that cry "*caw-caw*," and a bird that keeps crying—"It is coming! It is coming!"

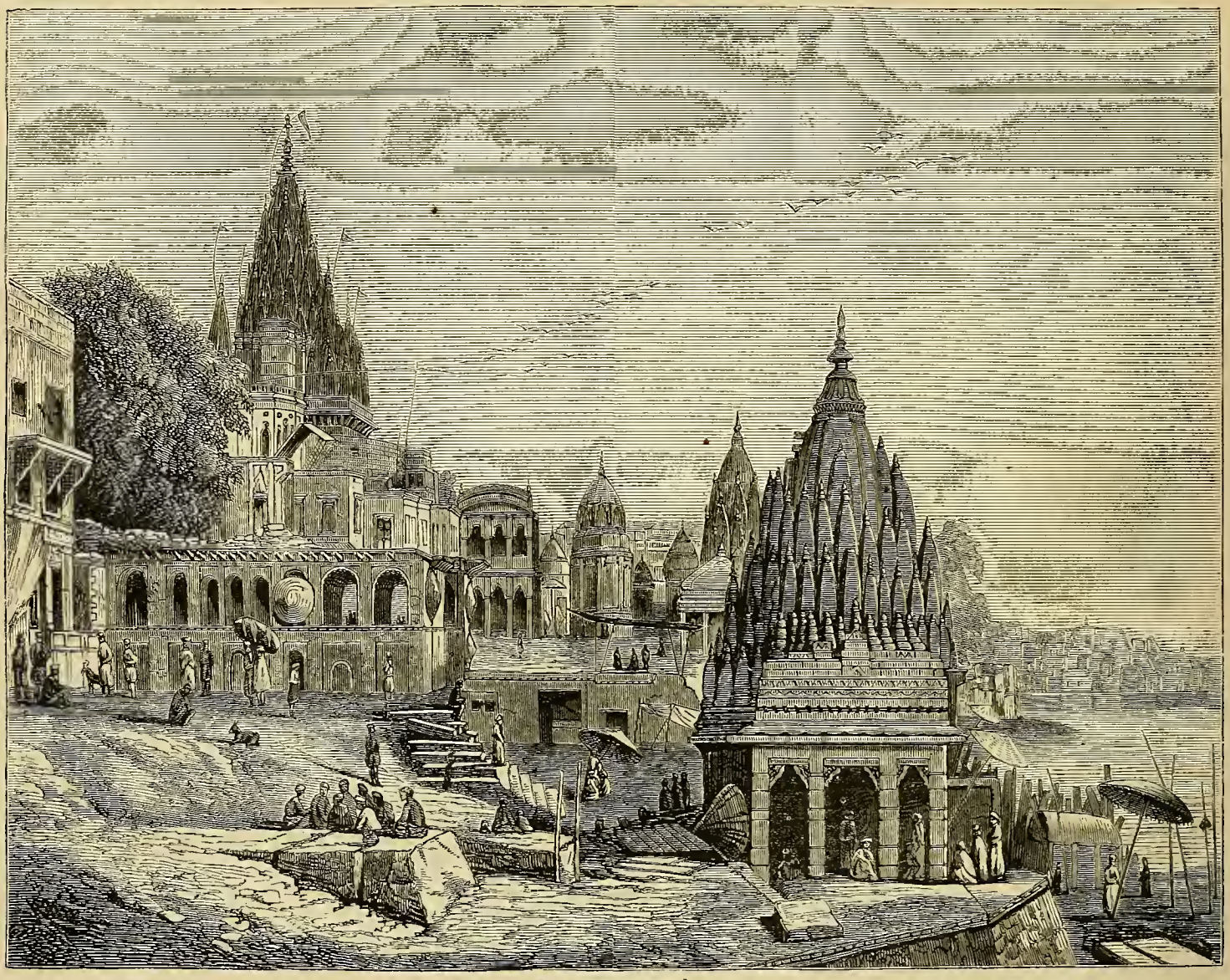
You see tame elephants bathing in the river; great, unwieldy fellows with ears as big as a blacksmith's leather apron—a long trunk, and a long tail. You think of what the Irishman said the first time he ever saw an elephant—"Fath he's a tail at both ends!" You see a boy on the back of each animal with an iron spike in his hand. When he wants the creature to do any thing, he gives a thump on his skull, and utters a cry which the elephant understands just as the horse understands your whoa! He knows at once by the inflection of the voice whether there is an exclamation or interrogation point after the whoa, and gees or haws accordingly. The elephants like to get into the water and they would stay there all day if their keepers would let them. The flies cannot bite them when they are in swimming. Sometimes they have fine frolics with their keepers. They sink down until you can see only the tips of their trunks, and then the boys have to stand up to keep their heads out of the water. Sometimes the elephants playfully shake them off into the stream. The boys do not mind it much for they are all good swimmers, and are in no danger of being drowned. If they were, the elephants would pick them up as tenderly as a mother does her child, and put them safely on their backs again. The elephants are sagacious animals, and very affectionate. They are fond of children and like to tend babies!...."*Tend babies?*"—Yes. The keeper's wife when she wants her baby looked after will hand it over to the great, clumsy animal, and he will watch it as carefully as the mother herself. If the little thing undertakes to creep away he coils his trunk around it, lifts it back, and keeps it between his feet. If it cries, he is in great distress. How nice it must be to have an elephant in the family for a nurse! If they are well used, they become very fond of their keepers. They always remember a kindness, and never forget an injury.

(*Concluded on next page.*)



No. 388. *Illustrated Rebus.*—A rather easy one.

No. 389. *Illustrated Rebus.*—A very true statement.



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A VIEW IN BENARES.—*Drawn and Engraved for the American Agriculturist.*

You may see at almost any hour of the day, thousands of men, women, and children bathing in the Ganges. They do not go in to have a good swim, to jump heels overhead, turn summersaults, and have a frolic, but to wash away their sins. You see old men scouring out their mouths with mud; they have told lies, perhaps, or spoken profane words, and they think that by giving their mouths a thorough scrubbing, they can make themselves pure. The women wash themselves and their babies. The little ones kick and squirm and scream, but in they go for all that, and get a good scouring. People come from all parts of India to bathe in the Ganges at Benares, because the city and the river are both holy in their estimation. They make long pilgrimages—some of them traveling hundreds of miles, hoping to wash away their sins in the flowing stream.

Festivals are held on the banks of the river, and at such times the people by the hundred thousand come to bathe.

The Hindoos and the Chinese are the two oldest nations on the earth. It is supposed that the Hindoos entered India from Central Asia, about the time that Abraham entered the land of Canaan. There is reason to believe that they were a strong nation at the time the children of Israel fled from Egypt. Before that the valley of the Ganges was thickly peopled by another race. Benares was one of the ancient cities. The Hindoo religion was more vigorous twenty-five hundred years ago than it is to-day; and if we had been in Benares a hundred years before Solomon built the temple in Jerusalem, we should have seen Hindoos by the thousand bathing in the river.

The temples are not large, but they are very gorgeous and dazzle us with their brightness when the sun reflects its rays from the golden roofs into our faces. There are many temples—some of them small and mean, and not worth our notice, but others where we may sit by the hour and wonder at what is going on.

The Hindoos are idolators and have a great many gods —*Indra*, is the god of the air; *Agni*, of fire; *Vishnu*, of light; *Shiva*, of evil. *Krishnu* is a jolly fellow—the god of love, and the Hindoo girls and women think a great deal of him. Perhaps some of the young folks would like to know if he resembles Cupid—that plump-faced little fellow with wings like a butterfly, and a bow and arrow flying about as if he was going to kill cock robin! Krishnu does not resemble Cupid. He is a nice young man who sits in a shady grove and plays a flute which all the Hindoo girls love to hear.

Another god is named *Hunnooman*, or the monkey god. A great many years ago—so runs the story, a chief with an army invaded Ceylon, and conquered it. The inhabitants were so small that the chief Hunnooman said that they were not larger than monkeys, but having conquered them he was called the king of the monkeys. Being a king, after death, the people worshipped him in the form of a monkey with a long tail, a sword in one hand, a sceptre in the other, a jeweled crown on his head, a gold necklace and other ornaments on his neck. All monkeys are well treated on his account, and so the monkeys of Benares have a nice time of it. Thousands are hopping and skipping over the roofs of the houses, or chasing one another from tree to tree, or else are on the lookout to steal something from the shops or from the baskets of the hucksters, who go through the streets selling fruit or vegetables. A Hindoo never would kill a monkey, for if he did the god Hunnooman would n't like it, and would take revenge by killing the Hindoo or by doing something to make his lot in life very bitter.

Fat bulls make themselves at home in the streets. They are sacred animals, for the people believe that a bull was a father of some of the gods. They thrust their noses into the baskets and boxes of the market men, and help themselves to rice, beans, or anything they like. No true Hindoo would think of killing or hurting them for fear of offending the gods. I think that they would not have such easy times as they now have, living on the best in the market without paying for it, if the lads of America who now handle the whip and goad could only get at them for a little while. And they are getting at them. The days of the sacred bulls are numbered. They cannot stand common schools, nor Sunday schools; Bibles, steam engines, nor telegraphs. The more the world has of these the fewer sacred bulls there will be. The locomotive in India is crowding bulls and the Brahmins who believe in them, from the track, and is bringing in a new civilization and preparing the way for the introduction of Christianity.

The people of India have some very strange notions about the world. But a small proportion of the 180,000,000 people of that country know anything about geography. They will tell you soberly that the sun is 800,000 miles from the earth; the moon 600,000; that the earth rests on the back of a tortoise, and that far away in the north is a mountain 600,000 miles high; that the shores of that mountain-land are washed on one side by an ocean of melted butter, on another by a sea of sugar-cane juice, on another by a bay of buttermilk, and on the other there is an ocean of delicious wine!

I do not wonder that you laugh at such nonsense; those Hindoos who have been to school do not believe it now, and are astonished that they ever accepted such foolishness. Because they have believed such stuff we are not to set them down as natural born fools; on the contrary, they are very bright, and their intellects are as keen as ours. They are tawny-hued, but are able to master a problem in arithmetic or get over a hard lesson in grammar, as well as the boys and girls of America. Thousands of them are attending school, and studying not only their own language but English as well. Some of the Hindoo gentlemen will speak not only their own tongue, but English, French, German, Italian, Latin and Greek. There are not many Americans that can talk fluently in all these. It is quite natural for us to think that those who are darker skinned than ourselves are below us in intellect; but there are a great many boys and girls, and men and women also, in the United States who would find the Hindoos ahead of them in some of the branches usually taught in the common schools.

[From the Chicago Tribune.]

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GEORGE S. PHILLIPS,
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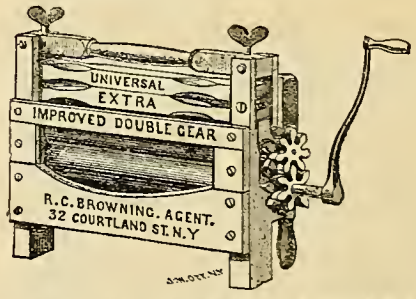

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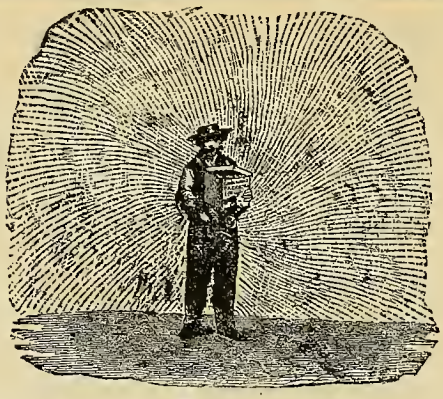

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(Page 44,) sows a breadth of 8 feet. Price $60; with Grass Seed Attachment, $10 extra.

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No. 6	" " with Grass Seeder	110

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Established in 1843.

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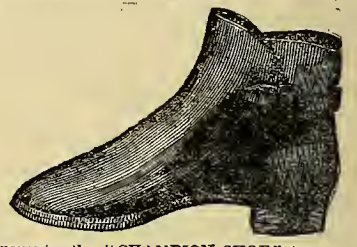

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For full particulars, recommendations, prices, etc., SEE page **237, JUNE** *Number,* and *page* **276 JULY** *Number of the* AMERICAN AGRICULTURIST.

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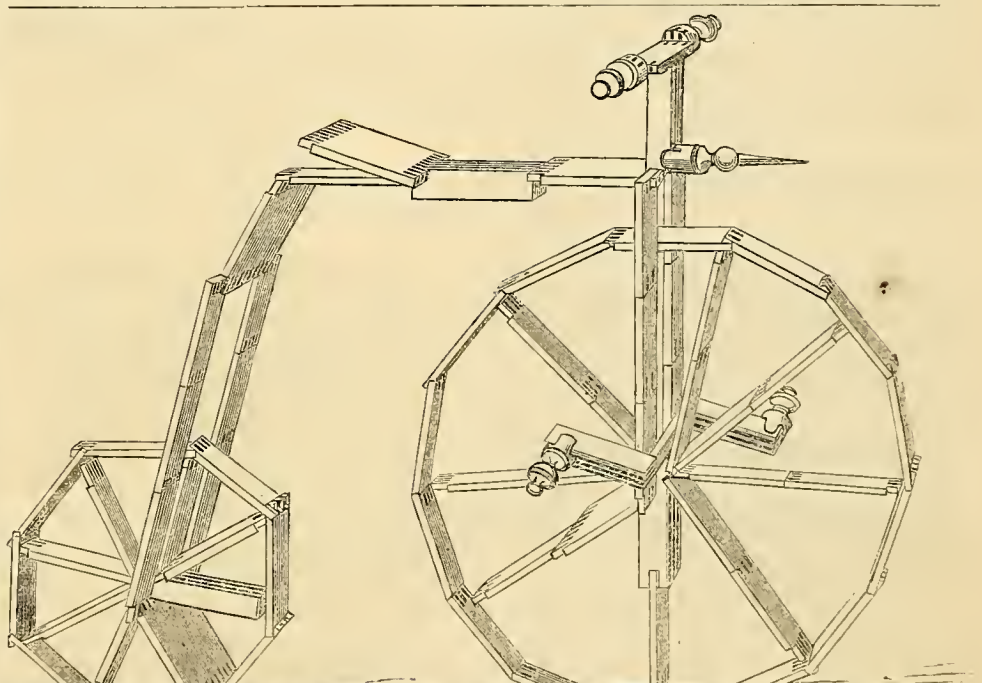

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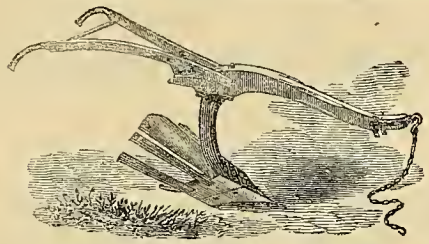

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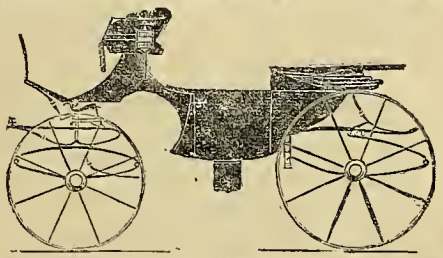

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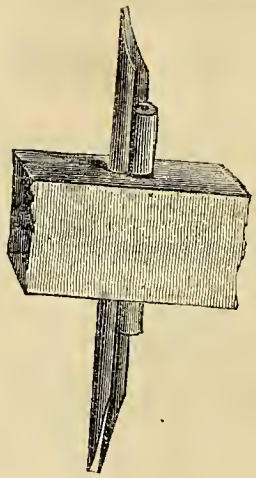

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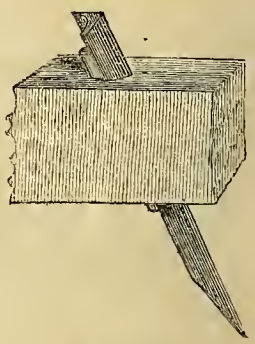

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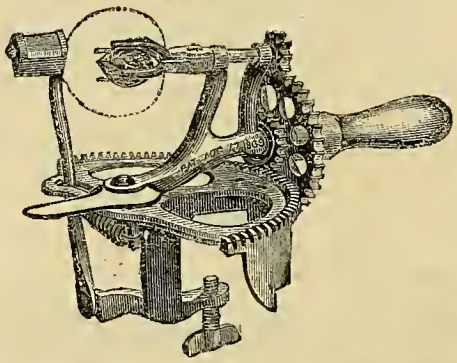

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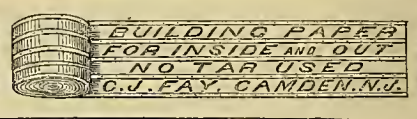

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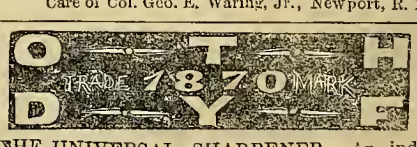

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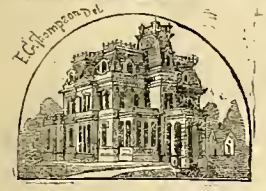

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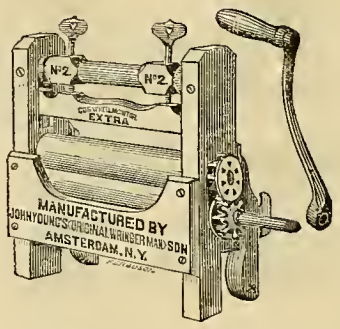

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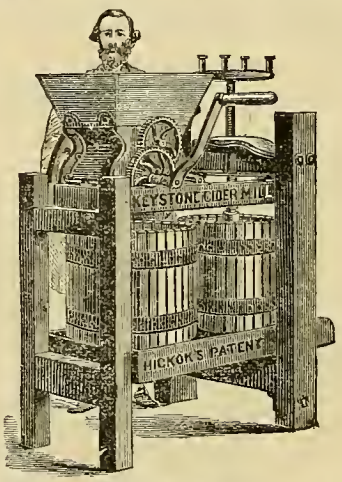

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Hammondsport Grape Exhibition.... .....Sept. 29-30
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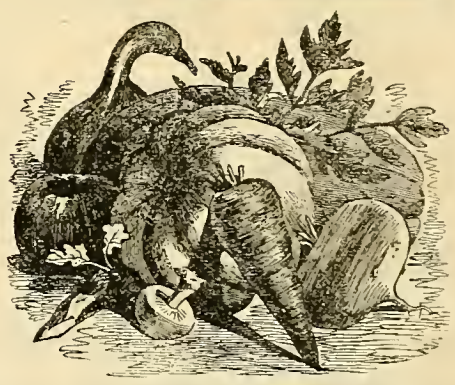

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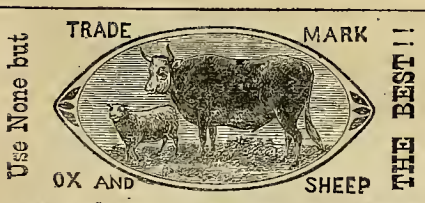

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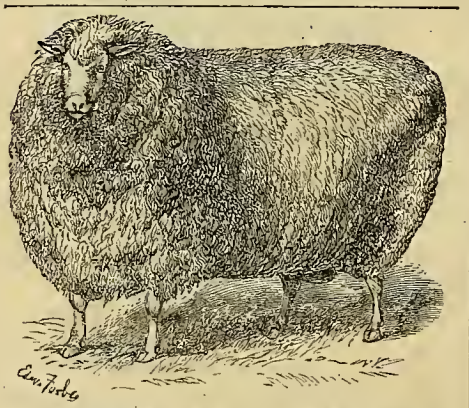

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VOLUME XXIX.—No. 10. NEW YORK, OCTOBER, 1870. NEW SERIES—No. 285.

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FRESH MILK.—*Drawn and Engraved for the American Agriculturist.*

Those who live in cities and large towns manage to pass a portion of the summer in the country. The more wealthy have their country residences, while those of limited means content themselves with a visit to a farm-house for a few weeks. With all classes one of the strongest inducements for this change of residence is the ability to procure an abundance of fresh milk for the children. The change from heated streets to open fields is not greater, than that from the liquid dispensed by the milkmen, to the pure milk, fresh from the cow. How the little ones thrive on it, and with what eagerness they watch for milking time! The artist has represented a happy group of these city children in the full enjoyment of their healthful country fare. Milk is the natural food for all young animals, children included, and contains all the elements necessary to growth. The milk of the cow differs from human milk in containing much more caseine, or curd, considerably less of sugar of milk, and more of the mineral constituents; the proportion of all solid substances in the two is nearly the same. The milk of the goat is more nearly identical in composition with human milk, than is that of the cow, though that contains a larger proportion of caseine. While milk forms so important a diet for young children, it is liable to become a source of disease from the readiness with which its composition is affected by the health of the animal furnishing it, and the rapidity with which it undergoes change after it is drawn. Nature has indicated in the most positive manner, that the food should be transferred from the mother to the young without change. Whenever we depart from this in any particular, unpleasant effects are likely to follow. Let the milk for children really be Fresh Milk.

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		H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.
1	S	5 57	5 42	10 43	5 56	5 43	10 48	5 55	5 43	10 53
2	S	5 58	5 40	11 43	5 57	5 41	11 48	5 56	5 42	11 53
3	M	5 59	5 39	morn	5 58	5 39	morn	5 57	5 40	morn
4	T	6 0	5 37	0 47	5 59	5 38	0 51	5 58	5 39	0 56
5	W	6 1	5 35	1 51	6 0	5 36	1 55	5 59	5 37	1 59
6	T	6 2	5 33	2 54	6 1	5 35	2 57	6 0	5 35	3 0
7	F	6 3	5 32	3 56	6 2	5 33	3 58	6 1	5 34	3 59
8	S	6 4	5 30	4 58	6 3	5 31	4 59	6 2	5 32	4 59
9	S	6 6	5 28	rises	6 4	5 30	rises	6 3	5 31	rises
10	M	6 7	5 27	6 20	6 5	5 28	6 22	6 4	5 29	6 24
11	T	6 8	5 25	6 47	6 7	5 27	6 49	6 5	5 28	6 52
12	W	6 9	5 23	7 16	6 8	5 25	7 20	6 6	5 26	7 23
13	T	6 10	5 22	7 49	6 9	5 23	7 53	6 7	5 25	7 58
14	F	6 11	5 20	8 28	6 10	5 22	8 32	6 8	5 23	8 38
15	S	6 13	5 19	9 13	6 11	5 20	9 18	6 9	5 22	9 23
16	S	6 14	5 17	10 5	6 12	5 19	10 10	6 10	5 21	10 15
17	M	6 15	5 15	11 0	6 13	5 17	11 5	6 11	5 19	11 11
18	T	6 16	5 14	morn	6 14	5 16	morn	6 12	5 18	morn
19	W	6 17	5 12	0 3	6 15	5 14	0 7	6 13	5 16	0 12
20	T	6 18	5 11	1 10	6 16	5 13	1 13	6 14	5 15	1 17
21	F	6 20	5 9	2 21	6 18	5 12	2 23	6 15	5 14	2 26
22	S	6 21	5 8	3 33	6 19	5 10	3 34	6 16	5 13	3 35
23	S	6 22	5 6	4 47	6 20	5 9	4 47	6 18	5 11	4 47
24	M	6 23	5 5	sets	6 21	5 7	sets	6 19	5 10	sets
25	T	6 24	5 3	6 10	6 22	5 6	6 13	6 20	5 9	6 16
26	W	6 26	5 2	6 50	6 23	5 4	6 54	6 21	5 8	6 58
27	T	6 27	5 1	7 37	6 24	5 3	7 42	6 22	5 6	7 48
28	F	6 28	4 59	8 33	6 26	5 2	8 38	6 23	5 5	8 44
29	S	6 29	4 7	9 34	6 27	5 1	9 39	6 24	5 4	9 44
30	S	6 31	4 57	10 37	6 28	4 59	10 42	6 25	5 2	10 47
31	M	6 32	4 55	11 42	6 29	4 58	11 46	6 26	5 1	11 50

PHASES OF THE MOON

MOON.	BOSTON.	N. YORK.	WASH'N.	CHA'STON	CHICAGO.
	D. H. M.	H. M.	H. M.	H. M.	H. M.
1st Quart..	1 4 35 ev.	4 23 ev.	4 11 ev.	3 59 ev.	3 29 ev.
Full.....	9 9 59 m.	9 47 m.	9 35 m.	9 23 m.	8 53 m.
3d Quart...	17 1 29 ev.	1 17 ev.	1 5 ev.	0 53 ev.	0 23 ev.
New Moon	24 10 52 m.	10 40 m.	10 28 m.	10 16 m.	9 46 m.
1st Quart.	31 3 17 m.	3 5 m.	2 53 m.	2 41 m.	2 11 m.

AMERICAN AGRICULTURIST.

NEW YORK, OCTOBER, 1870.

We have passed through a season of terrific heat, long continued, and little relieved by rains. The storms of the summer and early autumn have borne great blessings to the thirsty land, but they have been accompanied by violent winds and wonderful exhibitions of electricity, which have wrought local damage to the great distress of many farmers. These violent storms are usually quite circumscribed in their destructive effects, and around the outer sides of the tempestuous centers the blessed rains have fallen, moistening the parched earth and reviving drooping vegetation. Parts of New England, judging from our correspondence, suffered more than other sections. The cattle have been fed on hay; young stock on weeds and the undergrowth of the woods, and sheep on bushes and swamp grass. Late crops have suffered; corn, in some places, potatoes, almost everywhere, turnips, generally; nevertheless we are not likely to want. The great granaries of the West will feed the East, and there are many things we can do without. The modern hay presses put hay into such small compass that it can be as economically transported as corn. Bulk makes little difference, provided a railroad car can receive its full load of 10 or 15 tons, and this can be accomplished. While, therefore, the canal still competes with the railroads, it might be well to secure the transportation of hay to Eastern markets where there is likely to be a dearth. Cotton-seed cake, linseed cake, and other forms of concentrated provender will be used extensively this winter, and contracts should be early entered into for them, or a stock laid in.

The Fairs this year are held so that there seems to be less collision than usual, and persons can go from one to another, which, with exhibitors as well as Agricultural Editors, is very desirable.

Now is just the time of the year to start Farmers' Clubs. There is little enough social enjoyment in most rural neighborhoods, and a well-managed Farmers' Club exerts a civilizing and refining influence among the farmers' families. It makes people think of something besides the humdrum of the daily routine of work, eating, and sleeping. It promotes a taste for reading and thought about the daily pursuits of life, and in every way is improving and pleasurable. A good form for a constitution was given on page 287 (August), and one for a simpler organization, by some thought to be more elastic and better adapted to a Farmers' Club is given on page 369, of this number.

Hints about Work.

Farm Buildings.—Animals will soon need shelter, if they do not already, and should be regularly stabled at night, as in winter. In putting the stables in order, look well to the floors, and to the timbers in contact with manure, or the liquids of the stable; renew those which are in any degree weak. Tighten weather-boards, patch roofs if leaky. See that all buildings around the barn-yard have good eavestroughs and gutters, so that no more water than necessary enters the barn-yard.

Road mending at this season must be done with clean gravel and sand, otherwise the mended spots will be very soft, and will cut into ruts in fall and spring. This material, with small, broken stones in some places, is the only fit substance for mending roads, where it can be obtained. Make good, hard turnouts for water, on roads upon descending grades, distributing the road wash upon meadows or pastures, if possible. Bridges and embankments should be well looked to, and put in order for winter before cold weather sets in.

Ice-Houses.—Experiment has proved that though it is really cooler under ground than above, during most of the year, yet, that if the wooden walls of ice-houses be properly constructed they will prove a better protection to the ice above ground than stone walls, with a lining of plank and non-conducting filling below ground. Besides it is decidedly cheaper to build above than below the surface. We give a plan for an ice-house and dairy on page 376. The manner of constructing the ice-house portion is applicable to one used simply for keeping ice. The points to be borne in mind are simply these. 1. Perfect drainage. 2. Close, strong, non-conducting, double walls of plank on the inside, having the space between them not less than eight inches wide, and this filled with some dry, porous material, like saw-dust or spent tan. 3. An opportunity for a change of air above the ice—entirely avoiding drafts. A house 12×12 feet square on the inside, is the best size for a private family. 10×10 feet square will generally keep the ice well, but it will waste badly, and soft ice, such as we had last winter, will not last through the summer.

Poultry Houses.—We think it well to dig out for henneries, and set them a few (say 3) feet below the ground level, provided perfect drainage can be secured. Cement the bottom; set the studs upon the cemented floor; board up upon the inside above the ground level and fill in behind the boards with cement concrete. Outside nail hemlock boards against the studs as high as you have earth enough, or think best to raise an earth bank. We have given many plans for henneries in our back numbers. Light, warmth, cleanliness, and good feeding, will secure a supply of eggs all winter.

Potatoes.—A dry, warm spell will start potatoes growing, especially early sorts. All should be dug at once. We prefer to place them on the barn floor, or in some dry out-building, where they will "sweat" before bringing them into the cellar. When this cannot be done, place them in small piles in the field, and cover with straw or hay for a few days. When the whole heap in the bins or the cellar becomes moist from the sweating which is sure to take place without these precautions, rot is very likely to supervene. In digging leave the potatoes upon the surface and exposed to the sun only long enough to become dry. Then go through and pick up only those of marketable size, larger than a hen's egg. Afterwards pick up the rest, not missing one if you can help it. A potato as big as a filbert is worth something; if left in the ground, it may become a nuisance next year.

Turnips.—Keep free from weeds and stir the ground occasionally and the crop will pay you for it.

Carrots and Beets must be harvested before the ground freezes so as to form a stiff crust; and it is best not to risk too much in the hope of a warm, moist spell in which they will grow. These should sweat also before storing, and though carrots are

best kept in cellars, mangels and beets are equally well stored in pits in the open ground where it is dry. The pits should have abundant ventilation provided by bundles of straw or drain tiles set in the tops, which may be for the most part removed when the weather becomes severe.

Tobacco is liable to injury by hanging too close; and there is no little temptation, as it dries somewhat, to crowd it to make more room. It is best for it to hang closer than at first, so that the wind shall not have too free a sweep through it, for thus many of the dry leaves may be broken, and too rapid drying is undesirable. On windy days close many of the shutters, and when it rains, have all shut up. Tobacco sheds are often very handy places to store corn fodder in, but this must never be done to the injury of *the* crop.

Corn Husking should take place as soon as the grain is hard. Look to the stooks and see that none are partly overthrown by the wind, and that no ears lie on the ground where they will become musty, or perhaps grow. Save no ears for seed which are not of medium size, fair, even, of the standard color, and borne at least two on the stalk. The sooner corn is garnered, the fewer rats, field mice, and crows you keep as boarders.

Soiling Crops.—Where the winters are not more severe than on Long Island, and southward on the coast, and inland west of the southern line of Pennsylvania, we think milkmen would do well to try Winter Rape, Kale, and Winter Vetch, or Tare; sown early in the month, we are inclined to think they will all be found to give excellent early forage on heavy land, in good tilth, and well drained. They are highly esteemed in Germany, and the seed may doubtless be obtained in small quantities of our best seedsmen.

Winter Grain.—It is rather late, but not too late for wheat, if the ground is in first-rate order, not too heavy, and if we have rain enough. The earlier rye is sown this month, the better—no variety is superior to the New Jersey White. If sowing be unavoidably delayed, apply a fine compost of well-rotted and mixed hen manure, or of guano mixed with fine earth. Stable manure which has been mingled with dry earth while being collected, or with sawdust, is equally good, if used in proportionate quantity. This dressing should be harrowed in for wheat at the rate of about 250 pounds of Peruvian guano, or strong hen manure compost, to the acre, at the time of sowing; for rye, 150 pounds would probably do. Wheat and rye may still be sown for soiling. Sow double the quantity and enrich highly.

Plowing.—Do all the fall plowing possible. Even plow for corn if the land is heavy or very weedy.

Weeds.—No weeds that have ripened their seed should be thrown to hogs now. Give them sods, etc., to work over. Cut weeds, when wet, with the scythe, and move them gently into heaps or windrows away from dry grass or fences, and, when dry, burn them. Biennial weeds, which will blossom next year, mulleins, thistles, teasels, and multitudes of perennial ones, may be easily detected in the dry grass and cut up with a hoe or spade.

Muck digging will furnish employment for hands not occupied with more important work, and

Draining and ditching fall into the same category.

Animals of all kinds should be prepared for winter while the weather is mild, yet frosty enough to give them sharp appetites. A judicious use of turnip tops, cabbages which do not head well, green pumpkins and squashes, with nubbins and mouldy ears of corn, will save more valuable fodder.

Horses at pasture will need no other protection than a shed, if they have enough to eat.

Beeves should be warmly stabled, and fed well with ground feed, if possible, steamed.

Milch Cows get little good in the pastures, and should be out but a few hours daily, unless it is more important to save fodder than to have milk.

Young Cattle may have all the range they desire; but it is well to feed them something daily, roots, corn, pumpkins, or a "mess" of ground feed; to get them in good condition before cold weather.

Sheep.—The rams are put with the ewes for March lambs. Fattening sheep should be pushed forward and ripened off rapidly, if they are not to be wintered. Secure the stock for wintering in as good condition as possible, being more careful to have healthy sheep than to have fat ones.

Swine grow and fatten very fast in October. The cold weather of next month will check them if they are not already fat. Feed charcoal and some wood-ashes frequently; give pure water until they become fat; after that withhold water altogether, except what they get in their semi liquid, cooked feed.

Poultry.—Give more or less meat, pork scraps, etc., to help fowls through with their moulting. Wash henneries with carbolic soap; whitewash and provide dry soil and ashes for dusting when wet weather comes, as it probably will some time.

Vermin.—Wage a perpetual war against them in barns and out-buildings with traps, cats, and dogs.

Work in the Horticultural Departments.

The gathering of crops and the preparations for the approach of cold weather, make October one of the busiest months. The days, it is true, are shorter, but the weather is usually so glorious that one can do more work than under the oppressive heat of the longer summer days. The soil is usually in the finest condition for working, and it can be prepared to the best advantage at this season for the fall or spring planting of trees. A notice in large type attached to a nurseryman's catalogue, has just caught our eye; as it quite coincides with what we have frequently enforced, we give it: "Send your orders for Bulbs, Trees, Plants, Vines, etc., for fall planting, Now, and thus avoid the delay usual in the busy packing season—you cannot be too early, but may be too late."

Orchard and Nursery.

Apples.—The abundance of the crop in most localities renders it especially necessary to send only selected fruit to market, if satisfactory prices are looked for. Hand-pick and barrel carefully. Late varieties to be stored should be kept as cool as possible. Make poor fruit into

Cider and Vinegar, as this is the most profitable way of disposing of it. Cider-making is usually deferred until cooler weather, as it is better when the fermentation goes on slowly. Perishable fruit may be ground up and pressed for vinegar at once.

Pears.—The unusually warm and dry summer has, in many cases, caused the late varieties to mature earlier than usual. This may affect their keeping qualities. They must be kept at as low a temperature as possible. Do not mix varieties; and store all in such a manner that they may be readily inspected from time to time.

Planting of all except stone fruits, is advisable in those localities where the autumns are mild. The soil is in much better condition than in spring, the trees are usually more promptly procured from the nurseries, and the work is not so apt to be hurried. Prepare the land and stake the places for the trees, so as to be ready to put them out as soon as they arrive. In planting an orchard, put trees of the same variety together, for greater convenience in gathering the fruit. In planting, see that the

Labels attached by the nurseryman are not so tightly wired as to injure the tree. Do not trust to labels, but make a record of the position of the trees at planting time.

Nursery Stock may be trimmed into shape. Good cultivators manure between the rows of young trees.

Fruit Garden.

Planting may be done in all localities where the season is mild; we except strawberries, which are now better left until spring.

Grapes, except for wine, will have been mostly gathered. Fruit to be kept until winter should be in a cool, dry room, packed in small boxes. Isabella, Catawba, Diana, and Iona, are good keepers. Concord very poor, and Delaware nearly as bad, though this will keep for weeks if carefully handled.

Grape-vines are to be pruned when the leaves have fallen. In the vineyards it is customary to give a shallow plowing to cover up the leaves and kill the late weeds. Tender varieties are to be removed from the trellis and covered with earth. Vines may be planted; draw up the earth around them and mulch with leaves. Make cuttings, which are to be tied in bundles and buried in the cellar or out-doors where the water will not stand.

Strawberries.—If plants have been struck in pots they may be set now, but otherwise spring planting is preferable.

Blackberries and Raspberries may be set out, cutting the stems off to the ground. The nurserymen send out canes with the roots, but these are of no use save to serve as a handle in planting. These are readily propagated from pieces of the root, 2 or 3 inches long, which are to be packed in a box with alternate layers of earth; bury the box where water will not stand, and out of the reach of frost.

Currants and Gooseberries.—Prune, removing old stems if the bush is crowded, and shortening the new growth one-half or more. Make cuttings of the new wood, about 6 inches long, and set 4 inches apart in trenches, with one bud above the surface. Press the earth well against the cuttings and mulch with leaves or litter when heavy frosts come.

Kitchen Garden.

Plowing should be done, or in small gardens, spading, on lands not occupied, previously spreading on a good supply of manure.

Draining is another work of preparation that is best done this month. Plank drains, described on page 378, are better than none.

Asparagus.—The bed is to be cut over when growth has ceased. It is best to burn the tops and not allow the seeds to go into the manure.

Beets should not receive heavy frosts as it detracts from their sweetness.

Cabbages and Cauliflowers.—The plants from seed sown last month are to be set in cold frames. Put them 2½ inches apart each way and set them down to the leaves, covering the stems with earth. The sashes should not be put on until freezing weather.

Celery.—The drouth killed the planting in many places, and celery is likely to be scarce. Even that which stood the drouth is likely to be small. Keep it growing as long as possible, but bank up before severe frosts.

Lettuce.—Plants intended for forcing or for early spring planting are to be put into cold frames, the same as directed for cabbages. In mild localities the plants will endure the winter if slightly covered.

Rhubarb.—See article on forcing on page 381. It is better to make new plantations now than in spring. Manure freely, and, if seedling plants are not to be had, cut up old roots, leaving a bud to each piece. Set three feet apart each way.

Spinach will need thinning; use for the table the plants that are removed, or market them. Stir the soil between the rows.

Squashes.—Gather whenever there is danger of frost, place in piles and cover with vines at night; give them a few days' sunning before storing. Handle as carefully as if they were eggs, as the least bruise will be followed by decay. Store where they will be cool and dry, and not freeze. Large growers have a house devoted to storing them, in which a fire can be made in very cold weather.

Sweet Potatoes.—Do not wait for a severe frost before digging, or the potatoes will not keep. Take up the crop as soon as the leaves show that they have been touched; selecting, if possible, a warm day for digging, and allow the potatoes to dry in the sun. Pack in perfectly dry leaves or cut straw. The essential point in keeping them is to not allow them to become cooler than 60 degrees.

Flower Garden and Lawn.

This is the most favorable season for grading, draining, road-making, transplanting deciduous trees and shrubs, and doing much of the work that is usually left until spring.

House Plants.—The treatment of those that were

turned out is given by Mr. Henderson on page 382. Those which were merely plunged should not be left out after the nights become too cool.

Cannas.—The roots will not keep if left until the frost has killed the foliage. Take up when there is danger, and lay them under a shed to dry somewhat, and then store the same as Dahlias.

Chrysanthemums.—Pot for house-blooming, shading for a few days before exposing to the sun. Stake those that remain out to prevent breaking.

Bulbs.—Take up Gladioluses, Tuberoses, Jacobean Lilies, Tiger-flowers, and all other tender ones, and when ripened off under cover, store in a cool, dry place that is safe from frost. Tuberoses should not be kept where the temperature goes below 50 degrees. For hardy bulbs see page 383.

Pæonies.—Remove this month, as they seldom flower if disturbed in spring.

Herbaceous Perennials are also better transplanted at this season. When they have been in place for three or four years they should be lifted, the large clumps divided and reset in fresh soil. At the time of doing this there will be an abundance to give to less fortunate neighbors. Thin out seedlings sown earlier, and at the approach of severe weather give them a covering of leaves.

Dahlias.—When the frosts have disposed of the portion above ground, choose a sunny day and dig the roots. Let them dry off and store them in any dry cellar that will keep potatoes in good condition. Let the labels be legible and properly attached.

Winter-covering.—Many make a mistake in going into winter quarters too soon. When the ground begins to freeze, is soon enough. Materials should be collected. Leaves are among the most valuable; these and salt and bog hay and cedar or other evergreen boughs are the materials generally used.

Greenhouse and Window Plants.

The house should be in perfect readiness to receive the plants, should a sudden early frost make it necessary to take them in. The less hardy things should go in before frosts come, as the cool nights check their growth. The article upon house-plants on page 382, renders it unnecessary to say much upon the subject here.

Bulbs should be potted for winter blooming as early as they can be had. Use rich soil, with some sand to keep it light, and place the pots in a cool, dark cellar, or in a frame, and cover them with several inches of coal ashes or tan. When pots are covered in this way it is better to invert a thumb pot directly over the bulb to protect the shoot in case it should start before they are removed.

Insects.—Take none into the house with the plants. If any plants are infested keep them apart from the rest until they are thoroughly fumigated.

Forcing Plants.—A number of hardy shrubs and herbaceous plants are forced for winter decoration, and near cities, to sell to people who do not know any better than to buy them. Astilbe (Spiræa) Japonica, is one of the best, and makes a charming plant for winter blooming, and for cut flowers. Lily of the Valley, Dicentra, Deutzia gracilis, and others, are used. The plants are to be potted and kept in a cold frame or cool cellar, where they must not get "killing dry," and in February they are brought into heat.

Annuals.—Sow seeds in pots of such as may be wanted for winter blooming.

Appliances.—Get soil, sand, moss, pots, and whatever may be required, under cover in good season.

Commercial Matters—Market Prices.

Gold has further declined since our last, under the reports of the successes of the Prussian forces in France, which have been interpreted as giving promise of an early peace.....The receipts of Breadstuffs have been quite liberal, and receivers have been eager sellers, while the demand from home and export buyers has been less active, leading to a material reduction in prices. Toward the close, there has been a better inquiry reported for Shipping Flour, and for desirable lots of Wheat, Corn, and Oats, at somewhat firmer rates; the tendency being, at the latest, in favor of holders....Wheat continues to arrive in very poor order, and the bulk of wheat coming forward does not grade higher than warm and soft, adapted to steamer shipments....Cotton has been in more request and firmer, but closes depressed. The total yield of the crop of 1869–70, is given at 3,154,946 bales....Provisions have been decidedly less active; hog products have been quoted lower, with the finer grades of butter, higher....Wool has been in moderate demand at somewhat stronger prices....Hay, Hops, and Seeds, have been less sought after, closing steadily....Tobacco has been more freely dealt in at about quoted rates. The bulk of the business in Kentucky has been for export.

The following condensed, comprehensive tables, carefully prepared specially for the *American Agriculturist*, show at a glance the transactions for the month ending Sept. 14, 1870, and for the corresponding month last year.

1. TRANSACTIONS AT THE NEW-YORK MARKETS.

RECEIPTS.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
26 days *this* m'th.	596,000	2,254,000	1,581,000	57,500	151,000	1,429,000
27 days *last* m'th.	295,500	2,869,000	1,574,000	9,000	59,000	8,191,000

SALES.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
26 days *this* m'th.	291,000	2,656,000	1,719,000	37,000	4,850	1,531,000
27 days *last* m'th.	468,000	4,143,000	1,831,000	38,500	5,100	1,573,000

2. *Comparison with same period at this time last year.*

RECEIPTS.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
26 days 1870.....	596,000	2,254,000	1,581,000	57,500	151,000	1,429,000
25 days 1869.....	359,000	2,728,000	729,000	2,400	5,300	879,000

SALES.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
26 days 1870.....	291,000	2,656,000	1,719,000	37,000	4,850	1,531,000
25 days 1869.....	324,000	4,589,000	1,427,000	58,000	——	1,571,000

3. *Exports from New York, Jan. 1 to Sept. 14:*

	Flour.	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
1870.....	1,216,000	11,104,000	297,000	65,734	——	16,100
1869.....	975,290	11,615,661	1,537,677	114,005	——	45,097
1868.....	642,952	3,385,078	5,300,515	153,093	——	42,159

4. *Stock of grain in store at New York:*

	Wheat, bush.	*Corn,* bush.	*Rye,* bush.	*Barley,* bush.	*Oats,* bush.	*Malt,* bush.
1870.						
Sept. 12.....	1,387,487	761,894	50,869	107,474	1,053,079	130,881
Aug. 8.....	1,438,876	589,973	25,437	106,101	691,766	119 046
July 11.....	1,281,913	433,510	28,815	98,600	655,068	109,478
June 7.....	706,478	69,845	21,891	94,630	488,143	108,775
May 10.....	1,158,052	110,829	20,502	126,043	440,517	83,000
April 11.....	1,845,186	285,946	23,249	187,172	756,811	99,988
March 7.....	2,509,598	484,176	39,089	273,905	1,105,194	97,139
Feb. 11.....	2,902,638	534,003	62,112	322,425	1,199,672	36,214
Jan. 12.....	4,423,028	591,903	38,289	34,900	1,310,935	85,405
1869						
Dec. 11.....	3,810,562	833,909	55,043	285,906	1,386,594	77,097
Nov. 10.....	1,616,030	603,085	31,700	81,584	281,581	66,782
Oct. 11.....	978,272	445,068	24,467	5,948	120,950	67,091
Sept. 6.....	735,121	127,736	56,081	——	183,920	134,870
Aug. 9.....	634,262	253,155	75,797	381	50,219	105,458
July 10.....	531,657	328,613	71,418	2,966	259,985	97,177

5. *Receipts at head of tide-water at Albany each season to Aug. 28th:*

	Flour, bbls.	*Wheat,* bush.	*Corn,* bush.	*Rye,* bush.	*Barley* bush.	*Oats,* bush.
1870....	206,000	7,819,700	2,240,000	303,600	94,800	1,691,500
1869....	238,600	8,124,000	2,915,800	224,900	12,000	1,922,000
1868....	143,400	5,078,500	10,017,200	160,600	326,900	4,615,000

CURRENT WHOLESALE PRICES.

	August 13.			Sept. 14.		
PRICE OF GOLD.....	113⅛			113¾		
FLOUR—Super to Extra State	$5 25	@	6 75	$4 45	@	5 85
Super to Extra Southern.....	5 50	@	10 00	4 65	@	9 00
Extra Western.....	5 70	@	10 00	5 00	@	9 25
Extra Genesee.....	6 75	@	8 75	5 85	@	8 00
Superfine Western	5 25	@	5 75	4 45	@	4 95
RYE FLOUR.....	5 45	@	7 85	4 15	@	5 85
CORN-MEAL.....	5 25	@	6 25	4 50	@	5 35
WHEAT—All kinds of White..	1 55	@	1 90	1 35	@	1 65
All kinds of Red and Amber.	1 00	@	1 58	90	@	1 35
CORN—Yellow	1 00	@	1 10	86	@	95
Mixed.....	82½	@	90	76	@	83
OATS—Western	50	@	66	47	@	55
State	63	@	66	Nominal.		
RYE	1 05	@	1 25	85	@	1 00
BARLEY	Nominal.			Nominal.		
HAY—Bale ₱ 100 lb.....	85	@	1 25	85	@	1 25
STRAW, ₱ 100 lb.....	60	@	1 15	60	@	1 10
COTTON—Middlings, ₱ lb ...	19½	@	20¼	19⅞	@	20⅜
HOPS—Crop of 1870, ₱ lb	10	@	25	25	@	35
FEATHERS—Live Geese, ₱ lb	75	@	85	75	@	85
SEED—Clover, ₱ lb	13¾	@	14	14	@	14½
Timothy, ₱ bushel.....	7 00	@	7 25	5 50	@	6 00
Flax, ₱ bushel.....	Nominal.			2 25	@	2 40
SUGAR—Brown, ₱ lb	8¾	@	11¾	8½	@	11⅜
MOLASSES, Cuba, ₱ gal.	20	@	42	23	@	44
COFFEE—Rio, (Gold, in bond)	9¼	@	13	9	@	12½
TOBACCO, Kentucky, &c., ₱ lb.	6½	@	14	6½	@	14
Seed Leaf, ₱ lb	8½	@	55	7¾	@	55
WOOL—Domestic Fleece, ₱ lb.	38	@	56	42	@	56
Domestic, pulled, ₱ lb.....	25	@	45	25	@	45
California, unwashed,.....	21	@	32	23	@	35
TALLOW, ₱ lb	9¼	@	9¾	9	@	9⅝
OIL-CAKE—₱ ton	44 00	@	45 00	41 00	@	44 00
PORK—Mess, ₱ barrel.....	29 00	@	29 75	27 00	@	29 50
Prime, ₱ barrel	24 00	@	26 00	24 00	@	24 75
BEEF—Plain mess.....	12 00	@	19 50	12 00	@	19 50
LARD, in tres. & barrels, ₱ lb.	15½	@	16¾	15	@	16½
BUTTER—Western, ₱ lb.....	15	@	40	22	@	45
State, ₱ lb	17	@	40	15	@	35
CHEESE	4	@	14½	4	@	14
BEANS—₱ bushel	1 20	@	2 60	1 20	@	2 60
PEAS—Canada, in bond, ₱ bu.	1 10	@	1 12	1 10	@	—
EGGS—Fresh, ₱ dozen	23	@	26	25	@	27
POULTRY—Fowls & Chickens.	21	@	22	17	@	18
Chickens, Spring, ₱ lb.....	20	@	22	19	@	20
Turkeys, ₱ lb	22	@	23	21	@	23
Geese, ₱ pair.	1 50	@	1 75	1 50	@	1 75
Woodcock, ₱ pair.....	1 00	@	—	1 00	@	1 13
Grouse, ₱ pair.....				87	@	1 00
Green Corn, ₱ 100.....	50	@	1 00	75	@	1 25
POTATOES, ₱ bbl.....	1 50	@	3 50	2 25	@	3 50
SWEET POTATOES, ₱ bbl.....	—	@	—	2 25	@	3 50
TURNIPS—₱ bbl	2 00	@	2 25	2 00	@	2 25
CABBAGES—₱ 100.....	7 50	@	14 00	5 00	@	10 00
ONIONS—₱ bbl.....	3 00	@	3 50	3 00	@	3 25
CRANBERRIES—₱ bbl.....	—	@	—	—	@	—
BROOM-CORN—₱ lb.....	7	@	11	6	@	11
Tomatoes, per basket.....	50	@	75	50	@	75
Peas, green, per bbl.....	2 00	@	3 00	—	@	—
Cucumbers, ₱ 100.....	—	@	—	—	@	—
Squashes, ₱ bbl.....	1 00	@	1 25	1 00	@	1 25
Peaches, ₱ basket.....	75	@	1 50	75	@	2 50
Plums, Gage, ₱ bushel.....	3 00	@	3 50	1 50	@	3 50
Pears, ₱ bbl.....	2 00	@	10 00	2 00	@	9 00
Melons, ₱ bbl.....	1 50	@	1 00	1 00	@	2 00
APPLES—₱ barrel.....	1 00	@	4 50	1 00	@	2 50
GRAPES—₱ lb.....				4	@	12

New-York Live-Stock Markets.—

WEEK ENDING.	*Beeves.*	*Cows.*	*Calves.*	*Sheep.*	*Swine.*	*Total.*
August 15th.....	7,347	63	2,335	33,804	13,619	57,168
do. 22d.....	6,540	99	2,790	30,978	13,512	53,919
do. 29th.....	9,238	69	3,383	32,443	10,859	56,012
September 5th.....	9,613	56	3,170	38,200	14,587	65,576
do. 12th.....	7,829	61	3,172	41,571	17,677	70,310
Total in 5 Weeks....	40,594	348	14,850	176,966	70,224	302,982
do. *for prev. 4 Weeks*.	27,749	372	9,374	125,777	58,992	222,264

	Beeves.	*Cows.*	*Calves.*	*Sheep.*	*Swine.*
Average per Week.....	8,119	69	2,970	35,399	14,045
do. do. *last Month*....	6,937	93	2,343	31,444	14,548
do. do. *prev's Month*....	6,430	117	3,139	25,501	15,969
Average per Week, 1869.	6,275	92	1,752	28,876	15,348
do. do. do. 1868.	5,733	105	1,588	27,182	18,809
do. do. do. 1867.	5,544	64	1,320	22,154	20,605
do. do. do. 1866.	5,748	94	1,200	20,000	13,000
do. do. do. 1865.	5,235	118	1,500	16,091	11,033
Total in 1869.....	326,280	4,827	91,083	1,499,509	798,199
Total in 1868.....	298,128	5,166	82,571	1,413,479	978,061
Total in 1867.....	293,832	3,369	69,911	1,174,154	1,102,643
Total in 1866.....	298,880	4,885	62,420	1,040,000	672,000
Total in 1865.....	270,274	6,161	71,991	886,733	578,190
Total in 1864.....	267,609	7,603	75,631	782,462	660,277

Beef Cattle.—Not for years, if ever before, have so many cattle been sold in the New-York markets in one month as are given above, and one would naturally look for low prices and dull sales. Such, however, has not been the case, and almost every market day has seen the yards cleaned of stock. Prices for thin cattle have dropped from ½c.@1c. per lb., but on fair to good cattle rates remain unchanged. The increased supply was made up mostly of "Texan Hoppers" of poor quality. Of this class the best sold at about 12c.@13c., and all the way down to 8c. per lb., with some very poor ones by head at not more than 7c. per lb. The better grades of Texans sold more readily than very thin Illinois steers, butchers claiming the waste to be less in slaughtering. Good steers have been scarce, and what there were for sale went at good figures, there being no falling off since our last report. Below we give the list of prices, average price, and figures, at which the largest sales were made:

Aug. 15th, ranged	8	@16½	c.	Av. 14	c.	Large sales	13 @16
do. 22d, do.	8	@17	c.	do. 14½	c.	do. do.	12 @16
do. 29th, do.	8	@17	c.	do. 14	c.	do. do.	10 @16
Sept. 5th, do.	7	@17	c.	do. 14	c.	do. do.	10 @15½
do. 12th, do.	7	@17	c.	do. 14	c.	do. do.	10 @16

Milch Cows.—The market is dull, and prices low. Milkmen can seldom be induced to pay more than $70 @$80 for good cows, and they do not care for poor ones at any price. Just now, with the beef market full of thin, low-priced steers, there is no sale for dry cows, and most milkmen must sell their dry cows before they have room for the fresh ones. Prices then have ranged low, even for fair cows, and sales slow. We quote good cows at from $60 @ $80 each, with some very poor as low as $30@ $35 each..... **Calves.**—The supply has been abundant, but mostly of grass-fed calves. They are too thin for good veal, and sell at low figures, often going by the head at about $6@$8 each. Really fat, milk calves, of which there have been few in market, sold quickly and at fair figures. We quote prices as follows: Good, fresh milk calves, at 10c.@12½c.; Grass-fed, at 4c.@6c. per lb.; or, by the head, from $6@$10, if large..... **Sheep and Lambs** are still abundant, cheap, and very poor. We see no fat sheep nowadays for sale in market. Everything is thin, half-fed, and tough. Prices range according to quality. Lambs seem to be more abundant, and are about ½c. per lb. lower. Prices for sheep range from 4c.@6c. when sold by the lb. Lambs from 7c.@9c. per lb. for the best, all others sell by the head. One very poor lot went as low as $2 a head..... **Swine.**—Arrivals have been a little more free, and the market unchanged. Perhaps fewer hogs are selling at the highest price, 13c. per lb., but all go off quickly at a fraction less. Prices range for best hogs, 12½c.@12¾c. per lb.; Live hogs, 9¼c.@10¼c. per lb.

Large Pay for Little Work.

No better opportunity was ever offered for many thousands of persons to receive a large return for a little work—on rainy days, evenings, election days, odd spells, and even for constant occupation,—than is now offered by the Publishers, in their Premium lists for the next volume. (See page 392.) It is work, too, in which men, women, and children may engage. About **$20,000** were thus earned during a year past by a small portion of our readers, some ladies getting from **$300** to **$2,000** each, for premiums earned and sold, and small boys and girls as much as **$100** each. The total sum might just as well have been **$40,000,** or **$60,000,** or **$100,000,** if two, three, or five times as many persons had taken hold of the work. The *Agriculturist* went to some twenty-three thousand Post-offices, while premiums went to less than five thousand. It only needs some enterprising person at every Post-office to take hold of the

matter, and a premium club can easily be gathered. Indeed, at most places there is room for from one to half a dozen or more Premium Clubs. Few Post-offices have around them less than 25 families, and most have hundreds of families which ought to take this paper. We have 100 to 500 subscribers at *many* Post-offices, and still 1,000 to 1,300 at some others. *Any one* who will take hold with a will, determined to succeed, *will* succeed. The paper is very cheap—is worth more than it costs to every family—and it only needs some one to explain this, in order to get a large club of subscribers. You, Reader, may as well secure a premium, as any one else. As every new Subscriber (even in Premium Clubs sent by others) gets the extra copies free, it helps those who are making up premium lists this month, and **Now is Just the Time to Begin.**

containing a great variety of Items, including many good Hints and Suggestions which we throw into smaller type and condensed form, for want of space elsewhere.

Postage 12 Cents a Year in Advance.—The postage on the *American Agriculturist* anywhere in the United States and Territories, *paid in advance*, is 3 cents a quarter, 12 cents a year. If not paid in advance, twice these rates may be charged.

How to Remit:—Checks on New-York Banks or Bankers are best for large sums; made payable to the order of **Orange Judd & Co.**

Post-Office Money Orders may be obtained at nearly every county-seat, in all the cities, and in many of the large towns. We consider them perfectly safe, and the best means of remitting fifty dollars or less, as thousands have been sent to us *without any loss.*

Registered Letters, under the new system, which went into effect Oct. 1, 1863, are a very safe means of sending small sums of money where P. O. Money Orders cannot be easily obtained. *Observe*, the *Registry fee*, as well as postage, *must be paid in stamps* at the office where the letter is mailed, or it will be liable to be sent to the Dead-Letter Office. *Buy and affix the stamps both for postage and registry, put in the money, and seal the letter in the presence of the postmaster, and take his receipt for it.* Letters thus sent to us are at our risk.

Valuable Information for Everybody, not found in Our Reading Columns.—Our Readers who usually skip over business notices, advertisements, and the like, will do well to read through what is printed on pages 392-395, among the advertisements. The descriptions of the merits of a hundred articles will convey a good deal of useful information to every one. Much care has been taken in the selection of these items, to be sure that no unworthy thing should find a place, and that all that is said should be truthful—just as the publishers would talk to their most valued friends.—Page 393 explains the object of introducing the descriptions. The articles are placed before our readers on such terms, that almost any person, (Man or Woman, Boy or Girl,) can secure one or more of the articles *free of charge*. Let all our readers for once carefully read through the four pages referred to, (392-395).

The Publishers Astir—Cheap Papers.—The publishers of various newspapers are out with their offers of free copies for the rest of this year, and now is a good time to begin. As for Premiums, even the Religious and Political papers are giving them to those who canvass, instead of following the old custom, of begging people to "work for the good of the cause."—Our Publishers are behind in none of these matters—(in which they took the lead years ago)—as will be seen on pages 392, 393, 394 and 395.

Our Annuals will appear as usual towards the close of the year, and should be in possession of all who desire a compact resume of Agricultural and Horticultural progress. To show how widely they are distributed, we may mention that in one of them a new garden appliance was described. A few days ago the inventor called on us, and informed us that the notice had called out inquiries from every State in the Union, and that he was forced to go into the manufacture of an article that he had only had made for trial. In each of the Annuals is a list of dealers in Agricultural and Horticultural Stock of all kinds. These lists we wish to make as complete and as reliable as possible. No charge is made for the insertion of names. Those whose names were in last year's issues, and have made business changes, will please inform us; and new applicants for insertion should send their circulars or business cards at once.

Fairs in October and November.—A very full and carefully revised list of the fairs to be held the present and the coming month, will be found upon page 390.

Beautifying Country Homes.—A Hand-book of Landscape Gardening. Illustrated by plans of places already Improved. By J. Weidenmann, Superintendent of City Park, Hartford, Ct. New York: Orange Judd and Company.—We have numerous works on Landscape Gardening in which the principles of the art are ably treated, but we have none which would serve as a working guide to a person of intelligence, who wished to beautify his home by tasteful surroundings. We would not overlook the importance of works devoted to the cultivation of taste in rural matters; they have in a measure prepared the way for the present one. "Beautifying Country Homes" is a work which embodies the results of a long practice in landscape architecture and rural adornment, and while its teachings are in accordance with the received rules of art, they are thoroughly practical in their character. When one makes a new home he wishes that the grounds about it shall be laid out to the best advantage, not only for convenience, but to show all the beauties of which they are capable; and in purchasing a place planned by another, one is seldom satisfied with the arrangement of the grounds, but wishes them improved and modernized. The present work is intended to meet the wants of a large proportion of both these classes, who, if they knew how to go to work, would often take pleasure in making the improvements themselves. It gives plain directions for the preliminary work of road-making, draining, grading, and the like, selections of trees and shrubs for planting, suggestions for the introduction of ornamental water, rock-work, and the like, besides giving approximate calculations of the cost of the various operations. This portion of the work is copiously illustrated. The second part of the book is occupied with plans of places actually laid out from designs by such well-known artists as Olmstead & Vaux, Baumann, Butler, Camp, Perry, Fischer, Pilat, Schwaegerl, and several by the author. In these plans, which are beautifully colored in the best style of chromo-lithography, the planting is represented in perspective, in a manner that gives not only the position but the effect of the different single specimens and groups of the trees and shrubs, and the names of these are given in a descriptive key to each plan. These designs comprise places of various sizes, from the city and village lot, to the most extensive grounds; and they also give excellent examples for laying out public parks and cemeteries. We shall have occasion to refer to this work again, as it is one of the most elegant, as it is likely to prove one of the most useful, works ever issued in the country. It is printed on paper made especially for the purpose, is beautifully printed, and substantially and elegantly bound in beveled boards. Price, prepaid, $15.00.

Cranberries upon Upland.—Last month we stated that we had seen no instance of the profitable culture of the Cranberry upon dry soil, and that we would go a long distance to see a plot in successful bearing. This brought out an invitation from a gentleman living near Islip, L. I., and we visited the neighborhood, and saw enough to convince us that, contrary to our former impressions, the Cranberry can, under certain conditions, be made to grow and yield fine crops of excellent fruit upon soil as dry as any soil can be. A detailed account of the culture and the conditions necessary to success must be deferred until another month.

The Fair of the American Institute opened as usual with a vast show of confusion. The managers were not ready with their steam power and other arrangements; the exhibitors were not on hand, and of course everybody knew that for the first fortnight the affair would hardly get under way, so visitors were not quite as plenty as workmen. Experience seems to teach the managers little—for every year it is about the same. A good rule was made last winter, that no signs larger than 10×24 inches would be allowed; but why is it not enforced upon all alike? Liebig said once, that the degree of civilization of any people could be measured by its consumption of soap. The display of this article indicates either a most enlightened civilization, or that the floor manager is a soap-maker. By the time the *Agriculturist* is issued, we have no doubt the show will be a very fine one. October is the pleasantest month of all the year for strangers to visit New York, and the Fair will, no doubt, attract many from abroad who are interested in the various branches of productive industry. It continues until November 2d.

The Death of John Gould Veitch.—Within a year we recorded the death of James Veitch, and now we have to notice that of his son, John Gould Veitch, of Chelsea, Eng. Mr. V. was widely known as an explorer, as well as florist, and a large number of the Japanese, Chinese, and Australian plants now in cultivation are the results of his discoveries. With reference to father and son, the Gardeners' Chronicle truly says: "So long as British horticulture lasts, so long will the names of these earnest laborers in its cause call up feelings of regret and respect."

Mason's Fruit Jars, with Porcelain-lined Cap, we have found by experience to be excellent, and *very convenient*. Of over 50 jars used last year for various fruits, not one failed to keep the fruit well.

Sundry Humbugs.—The long list of swindlers published by us last month, has stirred up many of our readers, and *several others*, to forward to us the contributions of the thieving gentry, and so we have letters and circulars enough to furnish a good-sized detective's office, or to open a curiosity shop.—There is a grim satisfaction in investigating the schemes that now occupy the attention of a very large proportion of the swindling fraternity. Formerly they were constantly coming out with some new operation calculated to deceive *honest* people, and it was necessary for us to be on the constant look out for new features. But latterly they have found the *pretended* counterfeit money dodge so profitable, and so *safe*, that the rascals are working this golden vein to the neglect of others. We pity their dupes, but can hardly commiserate them. No man really honest at heart will respond to the invitation to buy counterfeit money, even though he believes it "so well executed as to defy detection by the most expert bankers." If he send for it, it is with the expectation of passing it off upon others, to his own profit. Can such a one deserve much sympathy if he himself gets cleaned out in the operation?—as he *always* does. The wily swindlers often use the following argument to influence those who are not depraved, but have very easy or elastic consciences. They enclose in their letters slips so printed as to appear to be cut from leading newspapers, going to show that the country is flooded with bogus money—that "one-half," or "two-thirds," or "nine-tenths" of all money in circulation is actually bogus, yet it passes just as well, and answers every purpose of good money; and then they argue, "this being the case, you may just as well take a hand in and enjoy some of the benefits; you will do no great harm; those who take it of you will pass it along to others, and they to others, and so nobody will be harmed; it is really just as good as the genuine money." This is the gist of the arguments ingeniously put forth; and we are sorry to know, *many* men, usually esteemed honest, fair men among their neighbors, and esteeming themselves so, are drawn into the meshes of the scoundrels who upon the spoils of knavery. To warn *such* victims we try to expose these swindling operations. Were it only the wholly depraved—those lost to shame and past hope of redemption to honest life, who were deceived—we should be induced to say let "rogue cheating rogue" go on until the smart ones clean out the weaker minded ones, and the former take themselves to an early grave by dissipation and rioting upon their ill-gotten spoils—as they usually do. Here is the modus operandi: First let us say, that in various ways, the name and P. O. address of nearly every man and boy in the whole country have been collected. These are copied out in lists; as a list of farmers, or merchants, etc., and sold to any one wanting them at so much per 1,000 or 10,000 names. The swindler starts by buying up 50,000 or 100,000 or 1,000,000 of these names, according to his capital, or the intended extent of his operations. Next he assumes some fair sounding name, locating himself in a sixth story or other secluded room. He then writes out and multiplies by lithography or otherwise, a very plausible, ingenious letter, and employs a lot of clerks, usually ladies and boys, to enclose and address these circulars to the names on his purchased list. A multitude of the people addressed will of course pay no attention to them; but as the circulars, postage, etc., cost only about 4 cents each, if he can get a response and a few dollars from only half a dozen in a thousand, he makes a round profit. He writes in a way to make his dupes believe he has some perfect counterfeit money, —"fac similies" of the U. S. currency—offers $100 or $1,000 or more for $10 to $50, more or less, and usually offers to send it C. O. D. if half or a fourth be furnished as a guarantee of good faith, and an assurance that the recipient will not "go back on him." And multitudes

catch at the bait, and forward their $5 and $10 and $25. Usually, nothing is ever heard of that money again. Or, if any response is made, a photographic *picture* of a $100 or $500 or other genuine bill, with the signature omitted, is inclosed in the bottom of a box filled in with old paper or shavings, and sent on by express, with a bill of $10 or $20 or more, to be "C. O. D.," (collected on delivery)—of course to be paid before the victim sees what is in the box, as he is shy about opening *such* a box until he gets to a private place. In response to the private invitations, many call at the "cyries" of these operators, sometimes going hundreds of miles to load up with the "queer." Very few men, if any, ever get out of one of these dens with any thing in their pockets. The operators carry on a very safe business, and this is why this field is so vigorously tilled. *First*, they never have, use, nor issue a single counterfeit bill! (They often send out or show a caller, a *genuine* dollar or more, pretending it is a sample of what they will furnish.) *Secondly*, even if they did send counterfeit money, none of their customers would dare to appear as witnesses, for by so doing they would make criminals of themselves. Indeed, when one calls at their "offices" he gets cleaned out; and if he makes the least sign of giving trouble, they have bogus detective policemen near at hand, who suddenly appear, and pretend to arrest the victim as one trying to deal in counterfeit money, and he, frightened half to death, is glad to get off silently by handing over to the supposed policeman all the money he may have privately stowed away as a last resort. Set it down as an invariable rule that *no man* ever has any dealings with these swindlers without losing every dollar he invests, and, if he come to their rooms, all he brings with him. (As a matter of caution, they do generally return the victim enough to pay his fare to a safe distance from the City.) These swindlers are not confined to New York, but are now operating in other large cities. Mr. James Gayler, Special Agent of the U. S. P. O. Department, and others, are doing all they can to break up the business, by refusing to deliver letters, etc.; but new names and places of operation are constantly being assumed, and they now resort largely to express parcels under the plea that their victims will be safer from observation. Last month we published many names assumed by the swindlers. Here are a few more: A. W. Powers; Chas. E. White & Co., 180 Broadway; C. T. Williams, 208 Broadway; Jas. Fisher, and J. D. Terhune, 204 Broadway; Adam Smith, 210 Broadway. Of another lot of circulars, etc., all alike, and pretending to come from 681 and 688 Broadway, and No. 2 Amity St., some are signed G. A. Sampson, others respectively by Joseph Bell. Charles Carter, Charles Perry, Daniel Harris. C. E. Carter, etc. Another large lot, all alike, are signed in separated lots, by Robert Holland, 142 Fulton St.; Wm. J. Ferguson, 194 Broadway; Wm. B. Logan, 5 Dutch St.; Jas. Wilson, 185 Grand St.; Frank Fielding, 266 William St.; J. H. Levi, 300 Pearl St.; Sam'l Fox (the old fox), Bergen Point, N. J., etc. Of course these many names and places are assumed by the same man as a blind to the P. O. people, the Express Companies, and their victims. Thos. G. Allison, 166 Fulton St.. and Jas. A. Holt, 116 Fulton St. (the same man, or devil), talks much about his "high standing" in N. Y. City, and of the safety of calling upon *him* without danger of suspicion—but his "standing" is not *high* enough to get letters from the P. O., and so he must only be addressed through the Express Companies, but not the American Merchants' Union Express, where he seems to be not in very "high standing," like several others of the above-named parties.——Holland and his Company, and others, add postscripts, saying that their Agents at Omaha have almost (not quite) exhausted their $1 bills to use among the Indians. But we have said enough to put on their guard, all who come under the influence of this journal. (If our friends will help put a copy of the *American Agriculturist* into the hands of the people generally, we promise to break up this and a great variety of other swindling operations within one year; and the money saved from swindlers will pay for a copy for every man in America, and in half of Europe at least).....In order to clearly set forth the above widely extended humbug, we have used so much space that a lot of other schemes must go over to next month for exposure, such as the Wilcox's Jewelry Association; a Short-hand College (In a P. O. Box!); a wonderful hen and cow operation for supplying the world with eggs at "ten for a penny," and butter at a penny a pound: more *very* low-priced sewing machines confidently offered, etc., etc...

P. S.—Concerning that "$5 Vinegar Recipe," noticed last month, we have received (too late to find room for them this month,) letters from the two worthy and highly esteemed College Professors referred to, stating their reasons for orlginally giving a favorable notice of the *theory* of the manufactnre, which was well enough in itself. But owing to the use that has been made of their names as a business recommendation, they both now withdraw all endorsement, and have so notified the seller of the recipe. They decline to be made to appear responsible for his dealings. He will of course not send out any further circulars with their names as endorsers. While many complaints have come to us of failure, and losses of $5, we have not received a word of approval from a single purchaser.

Sumach—Preparation and Marketing.—J. R. Coates, New Haven, Conn., sends a communication upon Sumach, from which we extract the following: "In cutting, any handy kind of knife may be used, and only this year's growth is to be cut. Leave it on the ground through the day to wilt, but it must be taken up and put under cover before the dew begins to fall. It must not be allowed to heat. Those who have but little spread it on the barn floor 12 to 18 inches thick; it must be shaken up and turned once in a while to prevent heating. Those who have large quantities lay down poles about a foot apart, upon which the sumach is placed as thick as it will dry well; another layer is put upon this, taking care to leave spaces for the air to circulate freely. It should have all the air possible, but no sun. When thoroughly dry it is spread upon the barn floor and thrashed with a flail until all the leaves are separated from the stems. The stems are raked off and the leaves are swept up, or more is thrashed upon the top of them. Pack in such sacks as will suit the market." Our correspondent states that this is the method in which it is prepared for tanners' use. In the market, the greater proportion sold is ground to a coarse powder, about the fineness of Indian meal, and as it is quite uniform in fineness the coarser portions are probably removed by sifting. It comes to market in gunny bags holding 160 pounds each, and is worth from $50 to $90 the ton, according to quality. The best comes from the South. Prices vary somewhat with the supply. We are unable to learn that any peculiar mill is used for grinding.

The Western Gardener, is the title of a new monthly journal edited by Dr. W. M. Howsley, and J. T. Lockwood, and published at Leavenworth, Kansas, at $1.50 a year. Kansas is a wonderful State; and after the exhibition of fruits she made at Philadelphia, we are not going to be surprised at any thing that she may do. So when she sends us a neatly printed and well-made-up journal, all we can do is to give it welcome and our good wishes.

The Fruit Crop in England.—The Gardeners' Chronicle presents its usual elaborate and detailed report on the condition of the fruit crop, which may be summed up as follows: Apricots, plentiful and good; Apples and Pears, abundant but small; Cherries, plentiful and good; Plums, above average; Peaches and Nectarines, numerous but small; Strawberries, not so satisfactory as the rest. Nuts of all kinds (including mast), plentiful. The drouth has affected the fruit crops as well as those of the field.

The New-England Fair.

The 7th New-England and 17th New-Hampshire State Fairs were held in conjunction at Manchester, N. H., from the 6th to the 9th ult. inclusive; but those who took the Society at its word and went there on Friday, the 9th, had their labor for their pains—for there was only a scramble among exhibitors to see who would clear out first, some speeches, and a few horse trots to keep up appearances. It is a fraud upon the public to advertise that the fair shall continue through certain days and then allow exhibitors, the moment premiums are announced, to tear off the cards, box up all the goods and articles which are not for sale, drive off their animals, and leave a desolation of empty stalls and tables. It is this sort of thing, and the politics that form a sort of under current in the management, that force this Society, which might be the very first and most influential in the Union, to get along without the coöperation of many of the most liberal men and most enlightened agriculturists in the section.

The horses were well stabled; cattle, large and small, under sheds; agricultural implements and products, with those of the garden and orchard, under canvass; but the poultry, exposed to sun by day, and cold by night, without the shelter even of a fence. As a "cattle show," the exhibition was certainly a success. We presume there never was a greater variety of excellent thorough-bred stock of all kinds than were here collected on the two middle days of the fair. The show of horses was confined chiefly to a few thorough-breds and many fine trotting horses, among which we are glad to notice many of fine size. There is still room for improvement in this respect, although we cannot expect to find as many speedy and tough, big horses as small ones. Two fine horses were trotting in opposite directions on the course at a "2.40" gait, when they came in collision and both were killed, one instantaneously. They were valued at $15,000, and $5,000, respectively. The *Shorthorns* were represented by selections from the herds of Benj. Sumner, of Woodstock, Conn.: Augustus Whitman, of Fitchburgh, Mass.; A. M. Winslow & Son, Putney, Vt.; D. S. Pratt, of Brattleboro. Vt., and others. Among these were many really first-class animals, but those of Mr. Sumner seemed to get rather the lion's share of the prizes. There was a fine show of sleek and sprightly *Devons*, to which the herds of H. M. Sessions, of South Wilbraham, E. H. Hyde, of Stafford, Conn., J. B. Sanborn, of E. Concord, N. H., Harvey Dodge, of Sutton, Mass., made the most notable contributions, both as to numbers and quality. Mr. Hyde will probably be best satisfied with the awards. Many of the best *Ayrshires* in New England were present, up to Friday. The honors were for the most part divided between S. M. & D. Wells, of Wethersfield, Conn.; Thos. Fitch, of New London, Conn; J. & N. Dane, of Kennebunk, Me.; and Nelson Walling, of Millbury, Mass. The *Herefords* all came from Maine, so far as we observed, and were shown by W. P. Blake, W. Waterville; E. G. Shores, Waterville; and H. C. Burleigh, Fairfield. We were disappointed in not seeing a good show of *Jerseys*, from some of the fine herds of eastern Mass.; we quite calculated upon it, especially as the President, Secretary, and some other officers are from this section; but their friends and neighbors did not come up to the mark. The show, however, was good, and chiefly made by Sam. C. Colt, of Hartford, and Thos. Fitch, of New London, Conn.; and John Brooks, of Princeton, Mass. Mr. Chenery, of Bellmont, Mass., of course sent his Dutch stock; we were glad to see several other exhibitors competing for the prizes in this department, several were taken by Charles Houghton, of Putney, Vt. There was a fair show of good *Cotswolds* exhibited chiefly by D. F. Appleton, of Ipswich, Mass.; H. M. Arms, of Springfield, Vt.; and R. G. Hill, of Elmore, Vt. Mr. Chenery showed *Texels*, and a curious broad-tailed breed of sheep. There were Southdowns and Merinos present of fair quality. There was a second-class show of both swine and poultry, the latter redeemed by a very fair collection, exhibited by John S Ives, of Salem, whose Light Brahmas and Buffs were remarkably good. The show of *Agricultural Implements* was very poor, but had several interesting features. There were no less than three forms of Hand Thrashing Machines, which appeared to work economically and well. A noiseless Mowing Machine attracted much attention, and we observed notable improvements in Horse Rakes. There was no worthy show of Field and Garden products, but a fair exhibition of fruits, which was soon out of sight under the dust. One of the especially attractive parts of the show was a collection of Elks, male and female, a beautiful Burmese cow, and a lot of Swans, black and white, Wild Geese, and other water-fowls.

Patent Humbugs.—C. Thurston asks: "Do you not perceive some humbugs among the thousand-and-one, U. S. Patents? Many persons are ruined by purchasing rights, territory, * * * Can't you ventilate this subject a little and caution people about buying territory for patents, of no earthly use?"—People who buy such things are beyond remedy. They will do it. There is a class who seem to have been created for the express purpose of making foolish purchases. Mrs. Toodles was the type of these; she bought a door-plate at auction with Thompson engraved upon it, upon the plea that Mr. Toodles might die, and she might marry a man by the name of Thompson, when this door-plate "would be so handy to have in the house." Such people can only be taught by sore experience. As to patents—the fact that a thing is patented is no guarantee of its value. It is only evidence that that particular thing has not been patented before. The case of persons coming round to collect royalty upon things that have been long in use, under the plea that a patent is infringed, is a difficult one. The best suggestion we can make is to have a Farmers' Club in every neighborhood, and in such cases let all combine to protect each against imposition. If one has unconsciously infringed a patent, he will make the best terms he can; but a cooperation of all the farmers of a neighborhood would put a stop to the "bluffing" of pretenders.

Descriptions of Grapes.—"J. L. R.," Baltimore, Md. It would hardly be a profitable use of our space to publish, as you request, descriptions of old and well-known varieties of grapes, such as Delaware, Clinton, etc. Every one interested in fruit culture should have some standard work of reference, and there are several works in which all the established varieties are described and figured, or you can send 25 cents to Isidor Bush & Son, Bushberg, Mo., and get their descriptive catalogue, a most valuable document. The grape which has "heretofore been the color of the Malaga," and this year has bunches of a pink color, is probably Goethe. (or Rogers' No. 1) which, when thoroughly ripened, as it is likely to be this season, becomes pale red in the sun.

Popular Names of Fruits.—When the name of a fruit becomes popularly established, the New York venders are apt to make it cover more than one kind. "Delaware peaches" and "California Bartletts" are cried over many a lot of fruit that never saw Delaware or California. The Catawba grape is a well-known and popular variety, while the Delaware is known only to the few, and we have been amused to see the street venders put up the sign, "Fresh Catawbas," over boxes of the Delaware. This is a case of deception, in which the victim is not taken in.

Weeping Trees.—R. B. Werden. We cannot tell you the cause of the pendulous character of those trees called "weeping." They are eccentric individuals, that have the peculiarity from the start, and are "born so." These and other departures from the usual habit of trees are perpetuated by budding and grafting.

The Richmond Peach.—Dr. E. Ware Sylvester, of Lyons, N. Y., sends us samples of this new variety from the original tree. He says in comparison with the Early Crawford: "It is more hardy, it is as large, as firm for marketing, as handsome, and that it is as sweet as any first-rate white peach; lacking the acidity the Early Crawford always has however ripe it may be. I grew 500 seedlings from selected seed; and the Richmond and Atlanta, a white peach not quite ripe, were the only ones I deemed better than varieties we had already." The specimens were of excellent flavor and very sweet.

"What is the Matter with these Grapes?" asks "Dobb's Ferry." Many of the grapes are discolored, have the skin broken, and are already passing into decay. Had our correspondent carefully examined the interior of the infected berries, he would have found a minute "worm," which is so near the color of the pulp of the grape as to readily pass unnoticed. This is the larva of the Grape Curculio, *Cæliodes inæqualis*, which will be found figured and described in our columns in July, 1868, p. 223. The perfect insect is $^1/_{10}$th of an inch long, and appears in July. It may be jarred from the vines early in the morning. At the West it has proved very destructive: there the fruit drops, and the larva goes into the ground to undergo its transformation late in July or early in August, while in the specimens from Dobb's Ferry (some 30 miles up the Hudson) the fruit had not yet fallen. This insect has not come under our observation before, but we have no doubt that much of the injury to grapes ascribed to bees and wasps is due to this curculio. It would be a wise precaution to gather all this infected fruit and burn it, or place it in a tight vessel and allow fermentation to take place, which would probably kill the larvæ. Riley, in his report on the insects of Missouri, 1869, says that probably a parasite is at work in destroying it, as in 1868 the vineyards in that State were almost entirely free from it.

Dahlias.—T. L. Ingell. You cannot expect Dahlias to bloom well until the heats of summer have passed. They have all they can do to hold their own through the hot months.....J. W. Bair. It is impossible to tell about Dahlias from description only. Your seedling you can name what you choose, but it is not worth while to name it unless it is really distinct. To get the finest exhibition blooms, the plant is allowed to bear but few. Good culture, in order to secure strong roots, is all that you can do to develop your seedling.

Cactus.—T. J. Ingell. The term Cactus, is a very comprehensive one, and it is impossible to tell what one you have that does not bloom. Some, of the hundreds comprised under the general head of Cactus, only bloom when of great age, and are cultivated for the singular forms of the plants. Others, again, flower when quite young. The best way to treat the majority of them is to keep them quite dry during the winter, and in spring when they begin to grow, give plenty of water.

Chestnuts in Illinois.—"D. L. M." The Chestnut will grow in any part of your State.

The Grape Culturist and the Farmers' Club.—We have heretofore spoken in commendation of the Grape Culturist, edited by Geo. Husmann, St. Louis, Mo., but we fear that we shall be obliged to retract. It quotes a talk on the Scuppernong grape at the N. Y. Farmers' Club, and then says: "It is certainly amusing—but at the same time disgusting—to see men, who have not the faintest perception of vegetable life, who know nothing about the influence of grafting, but only know that the word hybridizing is in the dictionary, and that it means some horticultural operation, persist in trying to force this grape upon Northern planters, etc."——Mr. Grape Culturist, this won't do, at all. The "Farmers' Club" is a peculiar, New York institution; it embodies wisdom, science, experience, modesty and eloquence, in a manner that no other institution ever did before, and probably never will again; and we simply demand that you show it that respect which it merits. Please keep on your own side of the Mississippi. How can you know any thing about grapes so far from New York?

Flowers in Church—A Beautiful Custom.—At the Methodist E. Church, in Middletown, Conn., (the seat of the Wesleyan University), a large vase of beautiful, fresh flowers, with small trailing vines and foliage, is always found standing on the table in froot of the Clergyman's desk; and on communion days, and frequent other times, one or two extra vases are added at the right and left, with a cross of white flowers upon the pulpit, or speaker's desk. This has been kept up every Sabbath, summer and winter, for several years past. These flowers are the gift of a lady, Miss Ellen Rockwell, who raises the flowers, and wreathes them with her own hands—presenting them as a token of love for the House of God—and it seems to us, a very appropriate one. Might not this custom be appropriately imitated in every Temple of Worship? in summer at least, where greenhouse flowers cannot be secured for the winter season—though they appear most pleasing at the latter season.

A New Peach.—Messrs. Kemp & Kerr, Choptank Nurseries, Denton, Md., send us specimens of a new peach called Glendale. It originated with the Rev. R. W. Todd, of Caroline Co., Md., and is described as a vigorous grower and good bearer. The fruit is of good size and exceedingly beautiful in appearance. The quality was remarkably fine for a yellow-fleshed peach, and seemed to us the best of that class we have tasted.

Lice on Cabbages.—We have been told that salt and water will kill these, but fortunately have not had occasion to try it.

Hedge in Connecticut.—"J. W. J.," Stamford.—For you the Honey-Locust will make the best hedge to "take the place of a fence." It will turn stock in four years. Land in good condition for farm crops is all that is required. Raise seeds in seed-bed, and transplant when one year old.

Moles.—An old gardener of our acquaintance says that he drove the Moles out of his garden by the use of coal-tar. He dips a corn cob in the tar and places it in the run. He says that the mole will not travel that road again.

A Vine Lock.—Mr. Edward F. Underhill, Brocton, N. Y., sends us specimens of a vine lock, which is a peculiarly bent wire for attaching the canes of vines to the wires of the trellis, and serves as a substitute for ties. Those who have used the appliance speak highly of it as effective, and allowing the work to be done with great rapidity. The samples came too late for us to try them this season.

Plants by Mail.—Persons who send plants, seeds, etc., by mail, should recollect that no written nor printed communication can accompany them. The law is very explicit upon this point. Nothing beyond the simple label is allowable.

Tobacco Stems for Manure.—"D. L. M." Tobacco stems will decompose if laid up with stable manure, and make an excellent compost for a market garden. Even burned for their ashes they would have considerable value.

Ants.—What will kill ants? We have published all the remedies that have come to us, and still the call comes for help against the pest. The ant question is still open. Let us have experiences.

The Black, or Barn Weevil.—Harrison Y. Kranse, Bucks Co. We believe there is no feasible remedy for this pest but starvation. If no grain is stored in the barn or granaries for a full year the insects die out. If a head of rye is in the hay, the probability is the insect will be found there and the evil perpetuated. The best way is to build barracks and shelters for hay, grain, and straw, and leave the barn empty for a year—at the same time clean it out thoroughly, and make what repairs are necessary. Granaries which are isolated can be fumigated with burning sulphur sometimes, and the weevil thus exterminated.

Wood-Ducks and the Falcons.—"S. M." pleasantly writes from Bluffton, Mo.: "Your Picture of our beautiful Wood-Duck in the Sept. No. is such a complete representation of what can be witnessed out here in the wilderness, that I am tempted to give you a little account of an interesting chase with a set of the young of the above named ducks. In company with another man and two boys, we went in a skiff to Hermann, fourteen miles below here. About midway down, and a few hundred yards from shore, we came across a half-dozen of these little ducks, about the size of half-grown partridges. The boys were elated and at once gave chase, as they said they would make nice pets. We said nothing, but well knew what would be the result. The skiff went one way and the birds another, for they would dive and reappear in every direction. In the midst of the excitement a new character appeared on the scene. Two Wandering Falcons, [We presume S. M. refers to the Duck-Hawk, *Falco anatum*, a very rare bird.—Ed.] came swooping down from a lofty cliff, screaming fearfully. 'Stop,' said I, 'one enemy is enough;' and we lay on our oars and looked on. Those voracious birds would come down like a dart at the little ducks, and when we thought one had a duckling in its talons, it would appear on the surface again. After various attempts in coming down on them, they tried it horizontally, and would skim along the surface like an arrow shot from a bow, and at times I thought a bird was actually in the Falcon's claws, but quick as lightning the little thing dived under. We stayed until the robbers went back to their lofty rocks. You may be sure we had no gun along, or there would have been one or two rare birds still more rare, as our feelings were by no means pleasant toward the assailants.

White Leghorn Fowls.—R. J. Taylor, Berkshire Co., Mass., writes: "In different parts of this State there are persons who keep what they call White Leghorn Fowls. Is there any such breed of fowls, and what are their distinguishing characteristics?" A fine engraving and description of this beautiful breed was published in the *Agriculturist* for March, 1860, p. 89, which you had better send for. We are more than ever inclined to adhere to our views then expressed, that White Leghorns, to be considered pure, should be of a slender stylish figure and proud carriage; and have pure white plumage, yellow legs, thin single combs, carried erect in the cocks and drooping in the hens, and white or creamy-white ear lobes. The hens should be persistent layers of medium-sized to large, white eggs, and rarely or never sit. They are a hardy, valuable breed, especially as layers. Increased size of fowls and of eggs should be cultivated—and the points named insisted upon. There is a *Brown* variety equally well defined and valuable.

"Mark on My Paper."—We frequently have a request that we shall answer a question by some mark on the writer's paper. This it would be more difficult to do than to write a dozen letters. The mailing is done with such great system and rapidity that it would cause serious interruption to single out a particular subscriber's paper. Besides it would be contrary to the spirit, if not the letter, of the postage laws.

"W. J."—We do not give advice on purely personal matters through the paper; and do not advertise any secret compound unless we know its composition, think it proper to use, and worth what is asked for it. But why not sign such letters?

Does Fish Culture Pay?—We have never doubted that it was profitable to raise trout to sell by the thousand when an inch or two long,—or to sell the eggs of trout and salmon,—but whether it would pay to raise trout as we raise sheep, in enclosed races and ponds, where almost every particle of food they receive must be provided for them at considerable expense, is a question we have never considered as satisfactorily answered. The following statement by Mr. Furman, seems to settle the matter, in his own case. As his system of breeding is peculiar, his success may be peculiar also. He writes: "You may place fish culture among the paying pursuits of the day, as I can sell my young fish *by weight* and pay the entire expense of shanty and attention, and will undertake to deliver them on the 1st of May next to the extent of *ten tons*—many of them weighing three-quarters of a pound each."

Stable Floors, etc.—"C. B.," of Bealston, Va., writes: "In the *Agriculturist* for August, in describing a barn, you speak of a depressed walk behind cattle to convey manure. Please tell us what kind of materials you use in making this walk, and the manner of mixing them. Also, if it will support the weight of a horse or cow without cracking?"—Such a walk may be made of two thicknesses of plank, the first receiving a good coat of asphaltum, rendered fluid by coal-tar and heat, and applied nearly boiling hot, and the seams of the upper planks being filled with the same. Bricks laid in common cement mortar, or in asphaltum and coal-tar, thickened with sand, and used hot, exactly like mortar, make an excellent stable floor. Stones may be used laid in the same materials, and if covered with dry earth, make a floor easy to the cattle or horses, and at the same time impervious to water, durable, and easily taken care of.

Important Announcement.

NEW YORK, Sept. 12, 1870.

To the Readers of the "Hearth and Home."

We beg to announce that we have this day transferred the entire publishing interest of HEARTH AND HOME to Messrs. ORANGE JUDD & Co., 245 Broadway, N. Y., who will hereafter issue this journal at their own establishment. We had intended during the present season to put forth greatly increased efforts to largely augment the value of HEARTH AND HOME to its wide circle of readers. But the regular business of our long established Advertising Agency has increased so rapidly as to demand our whole time and attention. We have, therefore, deemed it best for all concerned, to make the above arrangement. This we should not have done without making sure that our present subscribers would receive full satisfaction. Our friends, Messrs. ORANGE JUDD & Co., are veteran publishers, whose long experience and great facilities eminently fit them for making the HEARTH AND HOME all that both ourselves and our readers desire it to be. Their Monthly Journal, the *American Agriculturist*, is known in almost every household in the country, as one of great practical value. With the experience gained by them as Publishers, with their resources of men and means, and with their well-known skill, ability, industry, integrity, enterprise, and devotion to the interests of their readers, they can not fail to continue to make the HEARTH AND HOME just such a journal as is needed and desired, to be read around every Hearth-stone in every American Home, and we earnestly commend the new Publishers to the confidence, good will, and patronage of all our readers. Though thus severing our business relation with our readers, we shall have none the less interest in their future happiness and prosperity, and trust to retain our acquaintance with them—at least as members of the great family of HEARTH AND HOME readers.

PETTENGILL & BATES.

The above announcement speaks for itself.—The *Hearth and Home* is a large Weekly Journal, well illustrated, and holding a very high rank. We assume its publication with no little ambition, and a determination to do our work well. For many years past our old readers, by many thousands, have been constantly urging us to supply them with a *Weekly* Journal also. But we determined not to do this until we had accumulated so great an amount of experience, means, facilities, and well-trained *helpers*, that the additional enterprise could in no possible way interfere with the keeping up of the *American Agriculturist* to the highest standard of excellence, and even still further improving it. That point has been reached. The large corps of efficient, experienced men now clustered around our old journal as it enters upon its *Thirtieth Year*, not only ensures its continued excellence and still further improvement, but also furnishes extra talent to aid us in the new enterprise.

In thus undertaking the Proprietorship and Publication of *Hearth and Home*, we have large plans for the future, which will be faithfully carried out. These plans can not be fully stated here, but we will now say:

I.—The MONTHLY **American Agriculturist** will go on in every particular as for 29 years past, with no change, except for the better.

II.—The WEEKLY **Hearth and Home** will be an entirely separate journal in every respect—except in being issued by the same publishers. The numerous Engravings, the editorial, and other matter, will be wholly different, so that both journals will be equally fresh and acceptable in the same household.

III.—While we shall retain much of the valuable editorial and other talent which has elevated the *Hearth and Home* to its present high position and value, it will enjoy the benefit and aid of our own experience and that of those who have so long labored with us upon the *American Agriculturist*, and we shall also call to its aid a large increase of other practical working men and women of the highest intelligence and experience—those possessing the ability to instruct and please its readers. (Mr. DAVID W. JUDD, A. M., a brother of our Senior Publisher, who has for ten years past been engaged as an active editor upon two of our leading New York Daily Newspapers, will soon become identified with our interests, and devote his whole attention to the *Hearth and Home*.)

IV.—While the present form and general features of the *Hearth and Home* as it now is, will be retained with material improvements, other valuable departments will be added. An important feature will be the addition of a **News Supplement**, brought up to the moment of going to press, giving a condensed but full epitome of what is going on throughout the world. While giving political, religious, and other **news**, nothing shall appear having the slightest political or sectarian bias. Still more important will be the information respecting the *condition of the industrial products* of our great agricultural country. In this Office originated the scheme now partially carried out in the Agricultural Bureau at Washington, of reporting upon the condition and prospects of the crops of our country. A thorough, widely extended system will be organized for the coming year, which will give from time to time *reliable* information to all Producers, as well as to dealers, respecting the actual condition and prospects of all the leading crops of the whole country, and *thus do away with much of the constant anxiety felt by Producers in regard to prospective prices.*

The same care that has been so long exercised over the *American Agriculturist* to make its columns replete with information, and a *safe* and *reliable* visitor to the homes of our readers, a care reaching even its advertising columns, will also be extended to the *Hearth and Home*.

In short, the HEARTH AND HOME will be just such a journal as will be indispensable to every Country, Village, and City HOME—abounding in fine engravings of a pleasing and instructive character, and filled with useful reading for the Rural toiler, the Mechanic, the Merchant, and the Professional man *and their Families*. The *Housekeeper* will find her interests largely cared for, and the *Boys* and *Girls* and *Youth* will derive much of instruction and amusement from its pages. It will be peculiarly a valuable paper for the HEARTH AND THE HOME.

Some time will be required for the full arrangement of these various improvements, but they will all be provided at or before the opening of the new year. In the meantime the paper will be continued as heretofore, except as the several improvements shall from time to time be added.

Reduction in Price.—Notwithstanding the large improvements to be made, our facilities for publishing are such, that we shall be able to reduce the regular subscription price of the *Hearth and Home* from **$4** to **$3** per annum, thus making it, (taking into account its great number of costly engravings, and its intrinsic value,) **the Cheapest Weekly Journal in the world.**

Terms.—(In Advance:)

HEARTH AND HOME.

One Copy, One Year.....**$3.00**
Four Copies, One Year ($11).....**$2.75** each.
Ten or more Copies, 1 Year ($25)....**$2.50** each.
Single Numbers.....**8** Cents each.
20 cents a year extra when sent to British America.

One copy each of *Hearth and Home* and *American Agriculturist*, } One Year, **$4.**

Three Months Free, Now.

All subscriptions for **1871**, sent in now, or any time this year, will secure *Hearth and Home* the balance of this year without extra charge. Those subscribing promptly now, will thus get the paper fully three months for nothing.

One Hundred Premiums!

The most complete assortment of very choice articles ever offered by any journal as Premiums, are described in the Advertising pages of this paper. (See pages 392, 393, 394, 395.) As stated in the above Announcement, the *American Agriculturist* will not be affected by the Weekly, but it will keep right on, and improving. (The Weekly and Monthly papers will contain no articles or engravings alike.) In a week or two a Premium List will appear in the *Hearth and Home* for that journal, and those desiring can have a sample and canvass for both.—At least **20,000 persons**, young and old, male and female, may find pleasure and **profit** in raising Premium Clubs. The extra numbers given to new subscribers received this month makes this a good time to canvass. Read through the descriptions on pages 392 to 395.

For Important Items, see pages 392-5.

Evergreens from Seed.—"J. L. H." The chief trouble is with the young plants when they are quite young. They must be shaded, which is usually done by a lattice work of laths. They will sometimes suddenly "damp off" by a decay of the little stem at the surface of the ground. Sprinkling the bed over with dry sand, if applied in time, will usually arrest this.

Salt and Asparagus.—"J. L. H." asks: "How much salt will kill asparagus, and what is the quantity required per rod?"—We never had occasion to kill any asparagus in this way and cannot say. Probably our correspondent means to ask how much salt can be used and not kill the plants. We have a statement from a gentleman that salt may be applied half an inch thick with benefit to the plants. The quantity used by the New Jersey growers is from 5 to 10 bushels to the acre.

"List of the Agricultural and Horticultural and Pomological Societies, Farmers' Clubs, etc., on the Books of the Department of Agriculture, July 1, 1870, together with the name of the President and Secretary of Each,"—is the title of a pamphlet of 47 pages received from the Commissioner of Agriculture. This is a work which many will find very useful; and though it contains no intimation as to the manner in which it is to be distributed, we presume that the Commissioner will exercise his customary liberality and supply applicants as far as he is able to do so. There must be a new hand at the government printing-office, as here is a job from it that is not a national disgrace.

Box-Trees.—"J. J. R.," Wilkes Co., Ga. The compact growing dwarf box is a variety of the Tree Box. Your specimens, over 9 feet high, are large for the dwarf kind. You can transplant without difficulty, taking the tree up with as much root as possible. Do it in early spring, so that it may be well established before dry weather comes on.

Draining a Barn Cellar.—"B. W.," of Sherborn, Mass., writes: "By digging about 50 feet I can drain my barn cellar. I am troubled with water in the spring. There are plenty of cobble-stones handy. Can I put one or two feet of these into the ditch, and then cover them with dirt? Would the drain keep free?"—Your drain would no doubt keep free for a very long time, unless a considerable flow of water would at times go through it, if you put big stones, not closely, at the bottom, and fill up with small ones about a foot, inverting sods over this, and ramming down the clay hard upon them; thus making the drain take its water out of the soil, and not from above. It would, in all probability, be cheaper to buy good drain tiles than to handle the stones, be they never so "handy."

"How can I Drain a Pig Pen?"—Don't drain it: keep water from running into it from buildings or from the ground, and keep enough litter always on hand to be worked over by the hogs to absorb the liquid which properly belongs to the yard. A hog yard should not be in a place where water will run off from it.

Personal.—Mr. W. Robinson, Horticultural Editor of the London Field, is in this country upon a tour of observation. Mr. R. is favorably known to many of our readers as the author of "The Parks and Gardens of Paris," and "Alpine Flowers for British Gardens."

Killing Sassafras and Persimmon.—W. S. Walker, Kent Co., Md., says: "Cut them off just below the surface of the ground and apply a small handful of salt to each. I have killed thousands in this way. Do not attempt to grub them up, as you separate the roots, and hence do not get the salt into the general circulation, which you will do by cutting them just below the surface. My plan is to arm every man with a grubbing-hoe and a bag of salt, and make him apply the salt to each plant as he cuts it off."—Joel A. Burton, Mitchell, Ind., writes: "Say to 'J. A. M. R.,' of Georgia, top his Persimmons 3 to 4 feet from the ground, about the middle of June, at the same time removing all the laterals. Then rub off the sprouts as often as they are 4 inches long. None of them will live over two summers. I have tried this treatment and know it to be effectual."

Petroleum as Paint.—We continue to receive inquiries on this subject. We recommend the use of petroleum to preserve wood—not as a paint. Nothing should be mixed with it. The only point in applying it is to get as much oil on as the wood will absorb. We use it on implements, machines, wagons, carts, fences, buildings, shingle roofs, pig troughs, etc., with great advantage. It will certainly do much to preserve wood from decaying, and iron from rusting. We buy it by the barrel, at from 25 to 30 cents per gallon, and use it freely on all wood-work exposed to the weather. It is not necessary to go into the details of its application. We would simply advise our readers to get a barrel and use it freely on plows, harrows, drills, cultivators, reapers, mowers, tedders, forks, rakes, spades, shovels, hoes, axes, scythes, cradles, hen-coops, dog kennels, hot-bed frames, sashes, swill barrels, pails, pig troughs, plank floors, wheelbarrows, gates, fences, wagons, carts, sleighs, stone-boats, horse-powers, and sawing-machines. We have used it on all these and many similar things, and think even log chains and crow-bars would be none the worse for being rubbed over with it.

Washed or Unwashed Butter.—Mrs. "M. E. M.," of Frazeysburg (State not given), asks: "How came the Blanchard premium to be given to a woman who washes her butter?"—This implies that *unwashed* butter is the better,—better, of course, to eat at once, and to keep; better for home use, and for market; better for the reputation of the dairy-woman, and to give satisfaction to the customer. If "M. E. M." means this, we take issue against her position. Butter made from sweet cream or new milk need not be washed if made in cool weather and worked with great skill and care. Perhaps butter from sour cream may be so worked as to keep well without being washed at all, but we doubt it, unless indeed, a good deal more than an ounce of salt to the pound is used. But after all, the point is not whether under the most favorable circumstances butter can be made to keep well without using water in removing the butter-milk, but whether it would be wise to advise the practice; and we assert unqualifiedly our belief that whenever, with proper instruction, nine out of ten women will learn to make excellent butter if they wash it, not one in ten will make fair, without washing.

Ailanthus Unhealthy.—"C. W. S.," Canton, Mich., asks: "Is the Ailanthus unhealthy as a shade tree?"—Some years ago a New York physician conceived that the Ailanthus-trees were a cause of sickness, and proposed to get up a petition for a law ordering them to be cut down. We suggested he had better first fortify himself with some proofs that they were injurious to health. We have never heard of his proofs nor his petition. The staminate plants give off a disagreeable odor during their brief flowering time, but we have no reason to believe that they are otherwise injurious.

An Enthusiastic Farmer.—"J. M. M.," Knobnostor, Mo., writes: "I am a farmer and gardener of two years' experience. Have read Henderson's Gardening for Profit, Fuller on Small Fruits, Johnson's How Crops Grow, Flint on the Cow, Harris on the Pig, and *American Agriculturist*. Have 35 acres of corn that are safe for 2,000 bushels. Land plowed twice, harrowed once. No weeds. Whole cost of production less than $100. Have got some good, large sows, possibly Chester Whites, and am looking for a thorough-bred Essex or Suffolk to cross with them. I have had nothing but success. Stay at home and see that nothing fails for want of attention. Mr. Henderson uttered a great truth when he said that it was not so much a great amount of knowledge as a great amount of care that led to success in business. I am an enthusiast, and this hot weather does not allay it." You are on the right track. Go ahead and prosper.

Farmers' Clubs.—In forming Farmers' Clubs it is desirable to have the organization of the easiest and most elastic kind. So that while there may be the utmost freedom of pleasant social intercourse, the officers may still have the power to enforce the rules of deliberative bodies whenever necessary, and be themselves held to their own duties. A good form for a society, whose regular meetings would be for business rather than for social enjoyment and business combined, was given in August. Now we give one of a somewhat different character.

CONSTITUTION FOR A FARMERS' CLUB.

ART. 1. This association shall be called the Farmers' Club of ———. Its object shall be to promote a knowledge of practical Farming and Gardening among its members and the community, in connection with social enjoyment of the members and their families.

ART. 2. The members of the Club are those who frame this constitution and conform to its requirements, and others who may be invited to join by the executive committee, all of whom shall pay each $00—annually in October (or monthly), into the treasury.

ART. 3. The officers of the Club shall be a President, a Secretary, who shall also be the Treasurer, and three members, who, with the President and Secretary, shall constitute the Executive Committee. These officers shall be elected at the annual meeting on the second Tuesday of January of each year.

ART. 4. The President shall perform the duties usually devolving upon the presiding officer of a deliberative body, and act as chairman of the Executive Committee. The Secretary shall keep records of transactions, and be custodian of the funds and other property of the Club, being accountable at all times to the Executive Committee, giving bonds if required, and shall prepare and present a full report to the Club at the annual meeting. The Executive Committee, three members of which shall be a quorum, shall have general charge of the interests of the Club, and the carrying out of its objects. It shall fill vacancies in its offices, make rules, invite new members to join, regulate expenditures, manage exhibitions or fairs, publish offers of prizes and the awards, be responsible for the welfare of the Club, and report at the annual meeting through its Clerk.

ART. 5. The meetings of the Club shall take place on the second Tuesday of each month. The meeting in January being known as the "Annual Meeting."

ART. 6. This Constitution may be amended by a vote of two-thirds the members present at any regular meeting, notice having been given at the preceding regular meeting.

Percheron and Norman Horses.

We had the pleasure of inspecting a shipment of noble Percheron and Norman Stallions on their arrival, per steamer LaFayette, in July. Nine of them belonged to the Marion Norman Horse Co., of Marion, O., and four to Dr. Westfall, of Macomb, Ill. Messrs. Wallace & Kling, of Marion, and the Doctor, had traveled independently, and purchased the best horses they could find. Dr. Westfall's are 5 and 6 years old, of a prevailingly dark, dapple-gray color; three are of great size; one is smaller, of a lighter color, showing a more recent Arabian cross, and possessing greater fleetness, and a better trotting action. The others show the excellent judgment of Messrs. W. & K., in selecting them, their ages varying from 4 to 6, and their weights we should judge from 14 to 17 hundred. One noble 4-year old will, we hardly doubt, weigh 1,800 lbs. within two years. This horse has a beautiful head, a true Arab eye and ear, and is as gentle as a two-year-old filly. As an evidence of their great kindness of disposition, ten of them stood on three sides of a small stable, and there was not the least sign of kicking or biting, or any sort of roughness, and with a single exception they all allowed themselves to be approached and petted by total strangers, without an expression of dislike, but rather the contrary. We believe the importation of such animals is of very great service to the country. Our large cities are insatiable in their demands for heavy, fast walking, powerful, tough draft horses, for the express and railroad freight business. Our agriculture is demanding heavier teams and deeper plowing, and the spirit of our people is too fast for the ox. We want the power of the ox with the speed of the horse. Nothing should give a greater impetus to the plow than the fact announced and demonstrated, as we believe, by the Committee of the N. Y. State Ag'l Society, who made the awards upon plows at the great Auburn Show, and subsequent trials. This fact alluded to, is that a great increase of speed in the motion of a plow but slightly increases the power required to pull it. Hence, powerful, quick-moving teams are a vast economy of force. The Percherons are bred for heavy, quick draft, and differ from the Norman horses in having a more recent infusion of Arabian blood, and in being somewhat lighter, cleaner limbed, and much quicker in their motions. The Normans as now bred, are improving in these respects, while they are not allowed to lose weight. Either nick well, with large, "roomy," coarse mares, which should be sound, good milkers, and heavy feeders.

Bee Notes.—*By M. Quinby.*

The Apiary in October.—The honey crop of 1870 is good; the hives are very well filled. Owing to the poor season in '69, however, and the loss in the winter, there are fewer bees in the country than there were a year ago. Now is the time to select and prepare stocks for winter. Ascertain the amount of honey; allowing six pounds for wax and bee-bread. There should be 20 or 25 pounds. In movable comb hives, alternate combs that are filled, with such as are not. If a stock is light or lacks bees, do not attempt to winter it alone. Two light ones may be united. Now is the time to feed if necessary—now, or as soon as the brood is all hatched. Feed as rapidly as possible up to the required weight. Honey is the best thing to feed. If strained, scald thoroughly and skim, so as to obviate all danger of foul brood. (See description of a feeder given below.) All stocks a year old ought to be examined with reference to foul brood. By no means let any such be robbed, and so poison your own or your neighbor's bees. They get no honey now, and boxes should all be removed. Boxes partly filled may be set on hives needing the honey, and after the honey has been removed, the boxes with the clean, emp

ty combs will be valuable for another year. Best stocks now will show bees between all the combs. The strength of the stock is best ascertained in the morning. The examination for foul brood can be better made in the middle of the day. Take bees from stocks too light to winter, and set the combs away to freeze. Early swarms put into such would be likely to swarm again, or make more surplus.

Swarms going to the Woods.—J. B. Cuneo wishes to know what may be done to prevent a swarm from going to the woods, when it is disposed to do so after hiving.—Keep the hive shaded and cool, and close to the bottom board, except a half inch in front. If a difficult case, set in the cellar for forty-eight hours and give, perhaps, a pound of honey.

Bee Feeder.—I am using a new feeder, in some respects like Harrison's patent. Whether it is really covered by the patent or not I cannot say. Make a wooden box without a bottom, somewhere about 8 by 10 inches, and 2 inches deep. Nail over the top a piece of good muslin, leaving it loose enough to sag down in the middle nearly or quite to the lower edges of the sides of the box—if intending to use it on the top of box hives, it ought not to hang down quite so low. Now you can set this feeder, muslin side uppermost, on the top of a box hive, having opened the holes, or directly on the tops of the frames of a movable comb hive. Pour the honey or syrup on the concave muslin, and the bees will take it from the under side. Cover the whole apparatus so as to secure it from robbers.

Horse Papers for Farmers.—No. 9.

The following letter is a specimen of many that have been received: "You speak at some length about blooded horses, and mention that they may be bought for about $500. If not too much trouble, write me where such a horse can be bought of honest and reliable men. The stallions kept in this county are mostly of the Hambletonian breed, and stand at from $50 to $100;—*grandsons* of the old horse at that. I mentioned to an old horseman what a horse could stand for, and he said, 'A man who would bring a thorough-bred, and stand him at dunghill prices, ought to be tarred and feathered.' That would be the general feeling towards any one who would break up the monopoly, which is holding good stock so high that few feel able to pay the prices demanded, and so keep on raising Lunk-head stock that is seldom worth more than $150 to $200. If I had a thorough-bred horse here, I could get $15 easy for all the mares he could cover."

The only thing I can pretend to do in these papers is to set forth sound principles, and to advocate right practices—which are important to all my readers. I cannot act as a guide for those who wish to buy or to sell. This is a question that affects only individual readers, and I have no right to occupy space which belongs to all, in advertising either the wants or the wares of a few.

I am not altogether in sympathy with the spirit that raises the cry of "monopoly!" against those who ask high prices, whether for the use of a stallion or for any thing else. If the maxim holds good anywhere, it holds good in farming, that "a thing is worth what it will fetch." Mr. Jones would like to get the service of Mr. Brown's horse for $10—other people pay him $50. So, Mr. Jones says Mr. Brown is a monopolist. Suppose wheat was worth $5 a bushel, would Mr. Jones sell his wheat for a dollar because it is the work of "monopoly" that makes bread so high that the poor must half starve?—We do not recall an instance of his doing this. If J. thinks a good horse can be kept at less than B.'s prices, let him get a good animal and set up an opposition. This is the only way that has yet been discovered by which prices can be regulated. The "Laws of Trade" are universal, and, at least among farmers, the *Pro bono publico* spirit rarely does much good. The real benefactor of the farming community is he who has been impelled to do a good thing;—to do it as well as it can be done; and to keep on doing it well, *because it pays him to do it;*—not he who does the same sort of thing in a tolerably good way, and a half-interested way, for the sake of the example and lesson it will be to his "brother farmers." Brother Farmer is a very shrewd man. He doesn't mind seeing fine colts, big cattle, and rousing barns, but he is not apt to "go and do likewise" until he sees where the hard-money profit comes in. This principle applies to horse breeding. If our correspondents can make money by keeping thorough-bred stallions, (and they can,) they should by all means do it, and they will then do it as it should be done. If their chief motive is to benefit the community, they would probably fail to do that, and to get their money back too. Money, *money:* that is the soul of horse breeding, as of every thing else about the farm; and the greed for money is greater than all other forces in the improvement of the world's agriculture. It impels men to make improvements,—nearly all the real improvements that are made,—they make money by the operation; and when this becomes manifest, the whole community follows, more or less cautiously, in their wake, and lasting good is done. Those who adopt "improved agriculture" for the sake of benefiting other people rather than themselves, rarely convince any body that the new way is the best, and seldom do any good. If a farmer keeps a fine horse for the sake of the general improvement of the horses of his neighborhood, he does some good of course. If he keeps him in such a way as to make a lot of money by him, he will impel some neighbor to get a still better one to make more money—and so on, *ad infinitum.* The community gets the benefit twice over, and a new stimulus is given to the raising of fine horses. I know this is not the sort of patting-on-the-back that is usually given to those who, from really admirable motives, spend their money for the advancement of agriculture, but it is the plain truth; and Mr. Brown does more ultimate good to the farming community every time he pockets $50 for the service of a mare by his thorough-bred horse, than Mr. Jones would do by letting an equally good horse stand for $5. Partly because Mr. Robinson is watching the result to see whether he can't afford to buy a better horse than Brown's, and stand him for $30, and partly because the horse will be better kept and better shown up if he is kept for profit, than if kept for philanthropy.

Another correspondent wants a "Thorough-bred stock horse, (Hambletonian preferred.)"—Old Hambletonian is not a thorough-bred horse, and his sons are not thorough-bred,—but all his speed and endurance are attributed to his large infusion of the blood of imported Messenger, who was a thorough-bred. The term "thorough-bred" applies only to English running horses of pure pedigree. There is no such thing as a thorough-bred Hambletonian, thorough-bred Morgan, etc. This same correspondent makes the sensible suggestion that if those having thorough-bred stallions to sell would advertise them, they would find purchasers among the readers of the *Agriculturist.*

A writer in the Country Gentleman recommends that mares be made to foal early in the season, so that they may have a full flow of milk during May and June, and that suckling mares be fed with oats until their colts are weaned. The advice is good, and well put.

It is not a bad plan, under good treatment, to have mares come in in the autumn. Then they can be judiciously fed and well cared for in winter, and the food can be as nourishing as is desired. The flow of milk must be kept up until the pastures are good, and then the colt can be weaned on grass; but as grain will have been an important item of the dam's food during the winter, it should have oats night and morning for at least a month after weaning, and better, long after that. On most farms it would not be convenient, and would perhaps be considered too expensive to adopt this course, as it is absolutely indispensable to its success that the mare have the best of food. For general practice, therefore, the colt should be dropped before the first of June; better, by the first of May; and if extra horses are expected, they must not only be well fed from the outset, but the feed must be kept up, and they kept improving during the whole season. Every quart of oats given to the dam, (and so placed that the colt may eat too, if it will), will be repaid twice over in the value and usefulness of the future horse, provided no check be allowed. Oats must not be given one day and forgotten the next; if the pasture becomes pinched, it must be supplemented with green forage or more oats, or both. Especially should water be always accessible.

I have recently sold a half-bred sucking colt, four months old, out of an ordinary farm mare, for $75. He has probably had, in his milk and in what he has eaten, about $6 worth of oats since he was born. Without these I am satisfied he could not have been sold for over $50. He will be a cheaper purchase for the buyer at the price paid than he would have been without the oats at the other. I have three other young colts at pasture, and one other with a mare that is being used and fed with grain. The growth of this one is considerably better than that of those on grass alone, so much so, that I shall arrange hereafter, to feed grain daily to all suckling mares in pasture.

It would be curious indeed, to see how far the quality of horses (not thorough-bred) might be improved by substituting oats for blood for a number of generations;—and on the other hand, how far successive generations of thorough-bred horses would deteriorate under starvation and neglect. The experiment would probably show that food and care have far greater influence on the development of the race than most of us would suppose. After four or five generations of such treatment, the dunghill horses would probably be much superior to the degenerate thorough-breds. Good blood and good nourishment combined are necessary, not only to the production of the best horses, but to the most profitable production of all horses.

It is a generally accepted maxim in all stock feeding, that with growing animals, *excessive nourishment is the most profitable.* It takes a certain quantity of food to keep the machine running; so much to supply the waste through the lungs; so much for the waste of the muscles; so much to replace the discarded material of the bones; so much to keep the digestive organs distended. The consumption—the practical destruction—of this amount of food occurs in all cases; as well when the animal remains stationary as to growth, as when it was increasing in weight from day to day. It is from the assimilated food in excess of this waste that all profit comes. The rule is as good for colts as for beef cattle. If they are insufficiently fed, all that is taken up by the digestive organs goes to

sustain the vital functions of the animal—it is used up for "running expenses." Every ounce beyond this tells on its growth, and the more ounces it can be made to take up in a day beyond that which the natural wastes of the body demand, the more rapid will be its growth and development;—for if the food be of the right kind, and if the animal be living under suitable conditions as to exercise, sunlight, and fresh air, development will keep pace with growth.

By way of illustration, we will assume that a horse, five years old, has eaten the equivalent of ten tons of hay, and one hundred bushels of oats, and that his present weight is about one-twentieth part of the weight of his food. This weight represents all that has been actually saved from a vast amount of food. Of the remainder, all that has been assimilated by the animal has gone for "running expenses." The ten hundred and odd pounds are all the profit that the mill has made. Obviously, if by supplying the material faster we can accumulate the same amount of profit in a shorter time, we shall save the "running expenses" for so long. If it were possible to accumulate the whole weight of body in three years instead of five years, we should save two-fifths of the cost of supporting the animal's life while it is developing to a useful condition. That it is possible to do this, the wonderful races run by horses two years old sufficiently prove. Such immense results as this cannot be hoped for in the case of cold-blooded horses, with whom early maturity has not hitherto been an especial desideratum; but enough can be gained to add greatly to the profit of feeding; and after all, horse raising is only another means for converting the produce of the soil into a more salable form. It is within bounds to say, (and the statement is sustained by my own observation), that common horses may be grown as large, as strong, and as enduring at the age of three years as they generally are at five. It is a common impression that overfed horses are overgrown and "weedy." This is not necessarily the case if the food is of the right sort, and proper attention be given to exercise.

One means by which this more rapid development is to be secured,—the principal means indeed—is the feeding of *richer* food, especially oats, barley, peas, or southern corn. With hay and grass alone, no matter how good their quality, the best results would be impossible; but in ninety-nine cases out of a hundred, these are the only food given until the animal is old enough to be put to work. When we consider that a much less quantity of food is needed when grain is given, and much of the time required for growth is saved, we shall see that the greatest net profit will result from the use of the most nutritious food that the animal can consume and remain in vigorous health, and the administering of this food in the largest quantity that he can make profitable use of.

Ogden Farm Papers—No. 10.

It must be hard for any farmer to write about his farm in such a season as this without giving prominence to the subject of the *drouth*. We bought a thirteen-acre field for a calf pasture, partly because it adjoined the farm, and partly because it had a never-failing brook running through it. The never-failing brook is as dry as a railroad embankment, and the calves have to be driven to a neighbor's well. Turnip seed sown, over a month ago, in the cornfield, has not yet had rain enough to wash it into the soil and give it a chance to sprout. Clover that ought to afford a good bite, looks as clover would if planted in a brick-yard. Aftermath has grown just long enough to wilt, and there stopped. Mangels transplanted last month are growing a little, but not as they should. Ruta-Baga Turnips ditto. The only things that grow are the weeds, (these have we always with us,) and corn that was planted early enough to get well started and to shade the ground. In addition to the farm, I am running a large market garden and a flower garden. Roses wont bloom and vegetables wont grow. Prices are high and the demand is good, but this doesn't help matters—it is only an aggravation. Something must be done! What it shall be is not in all cases so clear, but it is a shame to see the reward of one's labor cut off by any state of the weather. In a few cases where heavy manuring has been combined with underdraining and subsoil plowing, the land laughs at the drouth if it is kept well cultivated at the surface; but fast as we are making manure, it will take a good while to get over the whole farm with the quantity required. Irrigation will solve the problem on a part of the garden land, but on the farm this would be out of the question for want of water. Subsoil plowing will help in all cases,—and help materially, but this alone is not enough. The only land that I know of that will stand drouth without a material checking of growth, is that which is, either naturally or artificially, well underdrained; which has been deeply stirred; which is not allowed to form a hard crust at the surface; which has been penetrated to a considerable depth by roots, that in their decay have left channels for the descent of growing roots; and which is, above all, well supplied with decomposing organic matter in a condition to attract moisture and to supply nutritious food to the crop. In short,—land that has been made as good as it is capable of becoming. Such land will grow luxuriant crops of any sort, if only they have had time to get well started before the dry weather sets in. Even this land will not grow stout grass without some rain, but it will always do the best that can be done; and every wise farmer will come as near to putting his whole farm into this condition as his circumstances will allow. And he will make himself rich by the operation, if he does the work of improvement judiciously; not otherwise, for it is as easy to squander money in improving land as in anything I know of.

The extent to which it will pay to fight drouth by artificial means, depends entirely on circumstances. I have about an acre and a half of celery that was set out in the very dryest weather, and the whole of it had to be watered daily, for a long time,—water being hauled in barrels in a mule cart an average distance of a quarter of a mile. Had the drouth not been extended, this would not have paid; for the market gardeners about New York would have had a full supply, and prices would have ranged very low. As it was wide-spread, only those who resorted to artificial watering have any celery left alive, and the chances are that this select few will be well repaid for their outlay. I am now about sinking a well in the center of a two-acre plot, from which I can, by the aid of a windmill and water-pipes, water the whole piece at any time, so that drouth shall not again be heard of on that tract,—and so that tender lettuce and full grown rose-buds may be had in midsummer. If the result is what I expect, this will pay. Neither operation would pay in simple farming; but there are hundreds of farms in every State on which a constant brook or spring might be made to do good service in dry weather almost without cost.

All that is necessary is to arrange some means by which the water may, at pleasure, be turned into a *level* ditch along the top of the slope to be watered. When the ditch is full, the water may be drawn off at intervals by cutting temporary openings with a spade, letting the water run until it has sufficiently saturated all the land within the reach of its flow, then closing these openings, and making others further on. When the irrigation is finished, the water should be drawn off from the ditch and allowed to run away to its natural channel, lest it make the adjacent land *too* wet,—which is as bad as too dry. If the slope is a long one it may be advisable to have a second or a third ditch further down, to catch the flow from the first, and take a fresh start in its distribution.

Any water will do. What we want, first of all, is a goodly supply of the universal solvent,—something to enable the plants to take up their food from the soil. Still, the water of a muddy brook is better than that of a clear one, and if it has washed the barn-yards and privies of a dozen farms lying up the stream, it will be all the better. Let the water be enriched with impurities if possible,—but above all, let there be water, and *be copiously supplied.* One caution is necessary: when the sun shines don't let on the water between 8 A. M. and 4 P. M., except on land that is fully shaded by its crop. It is best to irrigate only in calm weather, as the evaporation (and consequent cooling) is much more rapid when the wind blows.

How far it will pay to divert streams from their natural courses, for purposes of irrigation, and the sort of crops that will best pay for the outlay, must be decided according to the circumstances of each case. If we are to have many such seasons as this, it will pay wherever an abundant supply of water can be had at a first cost of the value of five tons of hay for each acre.

Numerous as they are, the men, who can procure irrigation water at any cost, are in a very small minority. The rest of us must resort to the universal aids of thorough cultivation and heavy manuring,—that is, to the highest kind of high farming. The more we can depend on soiling for the summer feeding of our stock, the easier our task will become.

I am surprised to find that so few farmers know the advantage of transplanting in the culture of ruta-bagas and mangel wurzel. It is comparatively easy to grow the ruta-baga by sowing the seed in the rows in which the plants are to stand, for it is a strong grower, and not very difficult to "tend" while young; but it is still easier (and better) to raise the plants in a seed-bed, and set them out in the field when they are large enough to bear removal. Mangel wurzel, on the other hand, is a troublesome crop to raise by direct sowing, and a very easy one to raise by transplanting. When young, it is small and tender, and if the land is at all hard or poor, it will scarcely grow so fast as the weeds; while in thinning out the crop great care must be taken to leave the best plants, and to leave them uninjured and at suitable intervals. I used to raise mangels in this way: The land was put in as good order as possible, as regarded both richness and fine cultivation. About the middle of May the seed was sown in drills (by a machine) 27 to 30 inches apart. At this season every thing grows well, and it was an even thing between the crop and the weeds. By the first of June we had to go down on hands and knees

and pick over the whole of the rows with the fingers,—a back-breaking, tedious task. Then the spaces between the rows must be hoed out by hand, because the plants were too small and delicate for the rough work of a dirt throwing horse-hoe. A fortnight later the sides of the rows must be carefully hand-hoed again, and some horse-cultivating tool put through the middle spaces. At this cultivation the rows must be thinned out, and it was almost impossible to make the men leave the strongest plants standing, and allow sufficient intervals between them:—at least a foot, and better 15 inches. Early in July another hand-hoeing of the rows was necessary, and the horse-hoe found work enough as long as it could be run without injuring the crop. The labor was enormous; and the growth on heavy land was checked by the hardness of the soil that the repeated handling of the rows occasioned.

I now do otherwise,—as follows:—The field on which the crop is to be grown is put in the same condition, at the same time, as though it were to be sown, and is left bare. The seed is sown in small seed-beds, in rows a foot apart, the land having first been made rich and fine. When it begins to grow, the rows must be hand-weeded, and the whole carefully hoed. This requires no more labor than an equal length of row in the field. After this, all that is needed is to keep the seed-bed clean, and its soil loose—no thinning is necessary. As fast as weeds appear in the field, it is cleaned with the harrow at a slight outlay. Just before planting time—say the last of June—it has a *thorough* harrowing with a Shares' harrow, to make it as fine and smooth as possible, but it should not be plowed, although this would better loosen the soil. The repeated harrowing will have killed all weeds whose seeds have lain within growing distance of the surface, but plowing would bring a fresh lot of seeds within the germinating range, and make work for the future. For planting, I use six hands (three would do half as well)—two to draw the plants from the seed-bed, two to drop them along the rows, these may be boys, and two to pick them up and plant them.

Plants are selected which are at least as thick through as a man's thumb—if they are as large as a hen's egg it will do no harm—and they are trimmed to a length of about six inches, say four inches above the crown and two below it. This removes the tap-root and all the leaves, the stems of the leaves remaining for a handle. In this work the plant pullers are helped by the droppers, until the rows are marked out. This is done by the two planters who commence at one side of the field, but at opposite ends, stretching a garden line between them, and making its ends fast close to the ground. They then walk, toward each other, *treading on the line* until they meet, then they turn and go to their starting points. Each has a stick thirty inches long to measure off the distances, and the line is moved to the new position, hauled taut, and trodden into the ground as before. The subsequent rows are marked in the same way. This plan has the advantage of being very expeditious and perfect. The impression made by the line is easily seen, and the marking is absolutely straight and at correct intervals. When an hour's work has been laid out,—a supply of plants having in the meantime been brought to the field, stacked up, with the heads all one way, and covered with mats or blankets,—the planting commences. Small hand-baskets are packed with rows of plants, and carried by the droppers to the end of the row. These men walk backward, and lay down the plants one by one at intervals of about 15 inches along the lines, *with the tops toward the left hand of the planters* who follow them. Each planter has a dibber in his right hand. He (1st) takes up a plant with his left hand, (2d) makes a hole with his dibber, (3d) inserts the plant, and (4th) drives his dibber again into the soil by the side of the plant, striking the point *toward the lower end of the root*, so as to pack the earth closely about it. The whole operation is done with these four movements, and he passes on to the next plant. A good hand will set out 20 plants in a minute, which is at the rate of 12,000 in 10 hours. Making ample allowance for interruptions, any clever workman will set out 6,000 in a day. My foreman, who was nine years with Peter Henderson, and is on his fourth year with me, will set out 9,000 plants a day, besides marking the rows and bossing the job. Any man will plant as fast as an equally good man or boy will drop, and the delay, if any, usually comes from the pullers.

After the plants are out, the field need not be touched until they are well established and have a good set of leaves. Then a horse-hoe or a one-horse subsoil plow may be run through the spaces, and the rows between the plants may be stirred up with a pronged hoe. There is absolutely no finger work to be done, and the field may be gone over with less work than would be required for the second hoeing of a field of drilled corn. Enough plants may be left in the seed-bed to make a crop, and if the land is equally good, these roots will not be nearly so good as the transplanted ones.

Ruta-bagas may be treated in the same way. Round turnips will not bear removal. The *secret* is to have the plants so large at planting time, that the substance of the root will be able to furnish moisture and nutriment to start the new roots and leaves. Now let us make a calculation:—An acre will require, at 30 inches by 15 inches, about 14,000 plants; the seed-bed will produce, say ten plants to the square foot, so that five square rods will raise the plants for an acre. Again, in an acre planted as above, there are about 17,500 feet of row. In a seed-bed of five rods, (at 12-inch intervals), there are about 1,400 feet of row, so that by this plan we save the finger-weeding and the baby-hoeing of about 13,500 feet of row, to say nothing of the infinitely greater facility with which, (owing to the killing of weeds by the harrow,) the crop may be kept clean, nor of the increased production.

Objection is usually made to the labor of transplanting, but this is absurd. An average green hand will plant a thousand feet of row in the time it would take him properly to do the first finger-weeding, or the final thinning out of a hundred feet of seeded row.

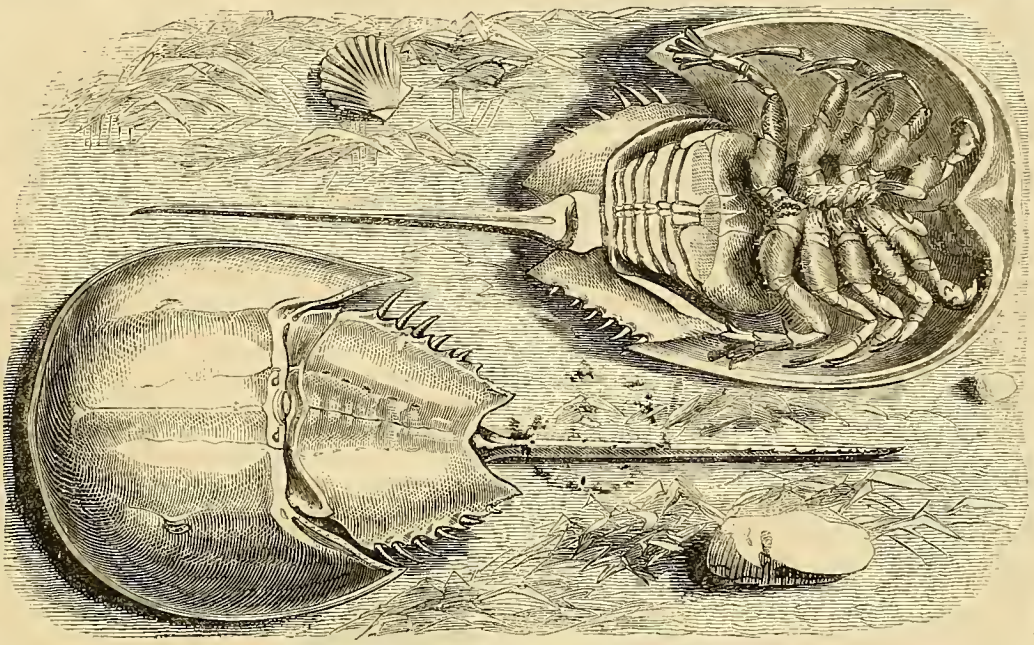
If I were obliged to fix on any one principle as the foundation of successful farming, I should take that of *a just proportion between the different departments of the farm organization.* Nothing is more common than to see, among those who are striving after improvements, a great want of balance between one part and another of their establishments. Farming is a composite business. It is like an army advancing on parallel roads, where the only chance of success lies in a simultaneous attack by all the columns. If one is forced in advance of the others, it is defeated for want of support; and the others in their turn are defeated for want of the help that it might have given—the army is "whipped in detail." There can be no success in farming, or at least no such success as we all should strive for, unless a true balance is kept up between land, labor, stock, and management. He who adds a hundred acres to his farm without increasing the number of his hands, the amount of his stock, and his intelligence and attention in managing the business, probably does himself harm;—if it is pasture-land that he buys, and if he uses it for summer stock, or if it be woodland, the case *may* be changed; but on general principles, if the farm is enlarged without an enlargement of working facilities, the work must be carried on at a disadvantage. Very often, indeed, a farmer wakes up to the idea that the key to all success is to be found in manure; and he devotes himself most energetically to its procurement, sending his men and teams to town to haul out night-soil at a season when they should be busy with plowing, planting, or cultivation. Manure he has, of course, and his land is made rich by it; but for want of proper care and management, the richness spends itself in the production of weeds instead of crops, and what would have been a source of great profit, with an addition of more men and more teams for home work, has been a losing business. Another may believe that his best chance for improvement lies in the employment of abundant labor; and he hires more men and teams than with his general facilities he can profitably employ, or more than he has the head to manage. Another, again, pins his faith to livestock of the finer breeds; and he buys expensive animals beyond his capacity for feeding and grooming. All of these men lose money, and all for the same reason. They give undue prominence to one branch of a business in which the growth of all the branches should be uniform.

I write this not from theory, but from experience. I have probably saved time by the course that has been pursued here; but had I known as much two years ago as I now do, I would have bought more manure to use immediately after draining the land, and would have had more labor to enable me to make use of the fertility, the drainage and manure would have given. I have maintained a pretty fair balance between the items of manure and labor, but by having more of both, I could have taken much earlier advantage of the capital invested in underdraining.—Neither my experience nor a general statement of the principle can be of direct value as a guide to any other farmer,—but they ought to be most profitably suggestive to every man as he walks over his farm and makes his plans for future operations. For every load of manure, let there be suitable land allotted, and for this land, let there be due facilities for the most profitable cropping. If land is expensively underdrained, let it also be thoroughly manured and cultivated. If fine stock is bought, let good food be provided for it, and let it be well attended to.—In short, let no part of the whole establishment fail to do its very best because some other part is defective. As soon try to ride a race with a lame-legged horse as to make your fortune by working a lame-legged farm. Every one of us is suffering to-day from this "want of balance;" let us all look sharp after the weak spots, and establish as much uniformity as we can, so that every dollar invested may bring its yearly ten cents of profit. If there is any better test of good farming than this, I have failed to discover it. In keeping up the *balance*, let us not forget our own heads, which are the most important part of the whole outfit. A good farm, with a bad manager, will "beat the dogs" at losing money.—Ruskin says, "It is only by labor that thought can be made healthy, and only by thought that labor can be made happy"—let me add that no labor can be happy that does not *pay.*

The Horseshoe, or King-Crab.

(*Limulus Polyphemus.*)

Those who visit the sea-shore for the first time will see many strange forms of animal life, but perhaps none will be more of a puzzle than that presented by the King-crab, Horsefoot, or Horseshoe-crab, as it is variously called. The form of the animal is presented in the engraving; and the size varies from the very young ones less than an inch in length, to the full-grown females which are a foot across the broadest part of the shell. The shell is in three parts; the forward portion, which is the largest, has a semicircular form, and consists of head and chest united into one; upon this are four eyes. The abdominal shell is somewhat triangular, with long and sharp teeth at the sides and at the end, bearing the third part, the tail, a long, sharp, bayonet-like spine, which is as long as the other parts together. This curious form, moving about with no means of locomotion visible, is ludicrous. Its color is a dark, blackish-olive, and as it moves towards one it appears as if an inverted basin were upon its travels. Turning the animal over we find twelve pairs of legs, six to each of the two larger divisions of the body; these legs are used for locomotion on land and in the water, but they serve other and singular purposes. The forward six pairs surround the animal's mouth, and the haunches of these legs serve as jaws and are furnished with spines which answer the purpose of teeth. The legs upon the abdominal portion are thin and leaf-like, somewhat like the "flipper" of the common crab, and besides being useful in swimming they bear the branchiæ, or gills, by means of which the animal respires. The Horseshoe-crab inhabits the deep water of our coast, but during the high tides of May, June, and July, it comes to the shore in great numbers to spawn. The eggs are deposited in the sand below high-water mark, where they are hatched by the heat of the sun. The animal feeds on the soft Nereis worms which are found in the mud of the sea-bottom. In order to find its food it is obliged to burrow—an operation to which, on account of its peculiar shape, it would appear to be ill adapted, but in reality its structure is such as to allow it to make very rapid progress. By partly doubling itself, which the joint between the two shields enables it to do, it can press the front edge of the horseshoe into the mud, then by straightening itself with the aid of the tail as a fulcrum, it is able to exercise a great deal of force, it being a kind of "toggle-joint" motion. The Horseshoe-crabs are caught in large numbers during the spawning season; those who live along the shore using them as food for pigs and for poultry, though they are said to impart an unpleasant flavor to the flesh of animals fed upon them. The female crab contains great quantities of eggs—often as many as half a pint, about the size of mustard seed, and of a greenish color. The eggs of one species are used by the Chinese for food; and those of ours are found by our fish breeders to be an acceptable food for young trout. At some point on the New-England coast there was a few years ago an establishment for making a fertilizer from the Horseshoe-crab, and we have seen them used on a small scale as a manure, applied without any preparation to the corn in the hill.



THE HORSESHOE, OR KING-CRAB.—(*Limulus Polyphemus.*)

Aquatic Birds—Divers and Grebes.

The family of Divers (*Colymbidæ*), which includes the Grebes, consists of birds of remarkable powers of diving and swimming. The rapidity and ease of their movements in the water are, however, offset by their clumsiness upon the land. In all the birds of this family the bill is rather long and compressed, the tail is rudimentary or very short; the tarsi much compressed, the hind toe free with a hanging lobe, and the others united by a membrane. The best known member of the family is the Great Northern Diver, or Loon, *Colymbus torquatus*, which has a remarkably wide distribution, it being very abundant upon the Atlantic Coast, through the interior of the country, and upon the Pacific. It is a large bird, measuring in its total length from 30 to 36 inches, and with a stretch of wings from 50 to 60 inches. The head and neck are greenish-blue, with purple reflections; upon the neck is a band, or necklace of white, longitudinally marked with a dusky color, and a small patch of a similar character under the throat.—The upper parts of the bird are glossy black, with spots of white in regular transverse curved lines, which, together with the colors of the head and neck, make the bird, if not a showy one, at least pleasing in appearance. The loon breeds within the United States, and builds its nest near the water, among the rank weeds and rushes, and uses grass and other plants in its construction. It lays two and three eggs. The Loon is a very noisy bird, uttering loud cries, which, to a solitary traveler in the wilderness, have a most dismal sound. Though apparently better adapted for movements in the water than for flight, the bird, in its migrations, takes long journeys upon the wing, often flying at a great hight. The Loon is sometimes eaten, but its flesh is dark colored, and very coarse. It is difficult to shoot if it observes the hunter, but if the sportsman conceals himself, and excites the curiosity of the bird by waving a colored handkerchief or his cap, and imitates its cry, it may be tolled within shooting distance. The activity with which the Loon dives is wonderful. To secure its food, or to elude pursuit, it

CRESTED GREBE. HORNED GREBE. GREAT DIVER, OR LOON.

disappears beneath the surface with great suddenness, stays under a long time, and reappears in an entirely unexpected direction. It is so active as to dodge at the snap of a gun, and be safely out of the way before the shot reaches it. We have seen a slightly wounded bird quite tire out a good sportsman by diving at every shot.

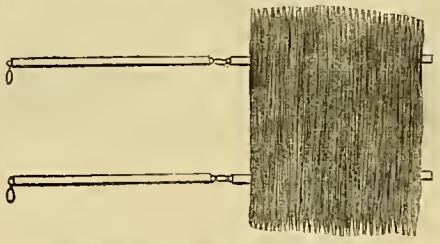
The Grebes belong to the genus *Podiceps;* in them the tail is represented by a tuft of downy feathers, and in the spring the head bears ornamental ruffs and crests, the form of which varies in the different species. The Crested Grebe, (*P. cristatus,*) is the nearest one, shown swimming in the engraving. It is found from Nova Scotia southward, and in the winter is not rare in Texas; it is also found in Washington Territory.—The prevailing color of the plumage is brownish-black, with more or less white upon the head, wings, and legs. The crest consists of two tufts of elongated feathers, which are greenish-black, tinged with green. At the upper part of the neck is a large frill, the front portion of which is reddish-brown. It is a quick-sighted diver, and is very difficult to shoot, though it is easily caught by a hook and line.

The Horned Grebe, *Podiceps cornutus*, is represented in the engraving standing next to the Loon. It is only about 14 inches in length, and has the same geographical range as the preceding. It has much the same general colors as the Crested Grebe, and is readily distinguished by its conspicuous tufts of yellowish-brown feathers over the eye, and the ruff of bluish-black ones at the upper part of the neck. The eye of the bird is a very striking one, it having a bright red iris, with an inner circle of white. We are not aware that these grebes have been domesticated; if they could be,they would form pleasing additions to our list of ornamental water fowls.

Walks and Talks on the Farm—No. 82.

I have just had a visit from an English farmer. The Deacon was wonderfully pleased with him, and all the more so because he controverted some of my notions about high farming and the value of thorough-bred stock. He came from Norfolk, and his relatives and neighbors are distinguished breeders of Cotswolds and other long-wooled sheep. One of them has just taken several first and second prizes for Cotswolds at the Royal Agricultural Fair. Human nature is the same everywhere; and I could detect a little feeling of jealousy. "It's all in the name," he said, "and in the feeding, and in washing with soap and water, and in combing out the fleece, and in fixing them up, the sheep, for show. They like to get hold of a Yankee to sell to."—The Deacon gave a quiet laugh. "Then you don't think it pays an ordinary farmer to raise thorough-bred stock," he said.—"Well," replied the Englishman, "we talk that matter over a good deal, some think it pays and some think it don't. If they sold all the rams that they raise it would pay very well, but they have always some that they have to keep over and there they are eating their heads off."—The Deacon gave another quiet laugh. "It would seem then," I said, "that the English farmers do not appreciate the advantage of living in the neighborhood of a good breeder any more than our farmers here, or they would hire his thorough-bred rams. I had a better opinion of their intelligence."—The Deacon saw the point, but the Englishman in his anxiety to defend his countrymen, replied. "We *do* hire them. Every breeder has an annual sale or letting, and thousands of rams are hired and sold at high prices. I hire four or five every year and pay about $25 each for the use of them for a season; and many farmers pay a great deal more."—"And this, mark you Deacon," I said, "is paid by farmers who merely raise sheep for the butcher."—"Certainly," said the Englishman, in happy ignorance that he was knocking the ground from under the Deacon's feet. "I don't understand," he continued, "why you do not have annual letting of sheep here. We should not know how to get along without them. By using a good ram our lambs are worth ten shillings a head more, when we sell them to the graziers."—"If thorough-bred stock does not pay the breeders, at any rate, according to your own showing, it pays the farmers who have sense enough to use the rams."

He staid with me several days, and I learned a good deal from him. He was a farmer's son, had been "through college," a man of considerable property, but he could, he said, "do every kind of farm work, and we think," he continued, "that a man who can not is not fit to manage a farm."—I told him that was good Yankee



ARRANGEMENT FOR CARRYING STRAW.

doctrine. "Why don't you thatch your hay-stacks?"—he asked. "Because I have no one that knows how to do it, and because our machines break the straw so short."—"What difference does that make? We sometimes thatch with stubble."—We went to the woods and cut a bundle of thatch pegs about three feet long, and from half to three-quarters of an inch in diameter, cutting them off square at one end and sharpening the other so that they could be pushed into the stack. Then he got four sticks about four feet long and an inch in diameter. He tied them together in pairs with a piece of strong string so as to allow them to be separated three or four inches, as shown in the engraving. He also put a string of the same length, with a loop at the end, on the other end of one of each pair. This was used to carry the straw on to the stack. We then got a quantity of wheat straw and nearly *saturated it with water.* The straw was then pulled out straight and laid on two of the sticks, some three or four inches thick. The other two sticks were then brought over and fastened at the other end, and the straw was carried in this way on to the hay-stack. First of all he raked down the top of the stack and leveled down the inequalities. He then placed the ladder about three feet from the gable end of the stack, and commenced at the eaves to thatch. Of course the straw was laid so that the upper layer would lap over the lower one. Then, with the head of a wooden hay-rake, the straw was raked down smooth and straight. Pegs were stuck into the stack and the thatch fastened on by hay rope or string wrapped round the head of the pegs. These were hammered down firmly into the stack and the operation was done. A good thatcher, with a man to wait on him, will thatch a stack containing 20 tons in a day. If well done, the hay is as safe as when in a barn. Long, coarse grass or rushes make better thatch than straw, and when used green save the trouble of wetting the straw. I think a great deal might be done to preserve a stack of timothy hay or straw by thoroughly raking down the roof after it had settled; doing the work when the surface of the stack was wet with dew or rain.

"I am surprised," said our English friend, "that you have not steam-plows. I have had one on my farm for six years, and we should not know how to get along without it. It is not that it does the work so much cheaper than horses, but it does it quicker and better."—I told him that as soon as we got rid of our stumps, and cleared the land of stones, we should be ready for the plow. "Why, bless me!" he exclaimed, "I should think you would want the steam-engines to pull out your stumps and stones. I could pull up the biggest stump or stone you have on the farm and drag it up to the headland."—And really, after going over the farm with him and showing him every impediment that I supposed stood in the way of using steam and hearing his explanations, I cannot see why the steam-plow is not precisely what we want. It appears that it is not on easily worked land like the prairies of the West, that the steam-plow is most advantageous, but rather on rough, clayey, stumpy, and stony land. On light, easily worked land, horses can do the work about as economically as the steam-engine; but when you want to work a hard, clay soil, ten, twelve, fifteen, or twenty inches deep,—smash it up and tear it all to pieces—there the steam-engine can be used to great advantage. It does not *plow* so well as it will tear up and pulverize the soil with a gigantic cultivator. There is another advantage that I had not thought of. You can attach a "mole-plow," to the gang of plows or cultivators, that runs down three feet deep and makes a mole drain in the clay subsoil. By providing a proper outlet these drains are nearly as effective as tile drains. No one can doubt that if we could thoroughly pulverize the surface soil, break up the subsoil, and make drains all at one operation, we have millions of acres of land that can be made to produce immense crops with little or no manure.

A farmer in Iowa does not know what to do with his straw. He writes: "I purchased an old farm, somewhat foul and rather wet. If I had to commence again I would take raw prairie, although in three years I have made some changes. My crops have increased full one-third, and I hope to treble them. I am keeping all the stock the farm can carry. This year, if the drouth continues, I shall be overstocked. And what stock I keep is good. I want the best or none."—That is the right doctrine. But good stock requires good farming—clean, dry land, rich grass, and good care and feed in winter. "But my object in writing," he continues, "is to ask you what I shall do with my surplus straw. I use all I can in the stables as bedding for horses and cattle,—and I stable on the average twelve head the year round; and I have used so much straw that my manure does not rot good. I also keep a good supply in my hog lot, yarding the hogs at night. They run in clover and rye pastures in summer. And let me here say that last season I sowed three acres of clover and in the same field I sowed last fall three acres of rye. On the first of June I turned twenty-five fall pigs into the field. They lived on the clover until the rye was ripe, and then they went at the rye; and this is all the twenty-five pigs have had from the first of June un-

til the middle of August; and I expect the rye to seed itself for next season."—I should think this a good idea. It is, perhaps, rather a rough style of farming, but if it answers the purpose and saves labor, I see no objection to it. Have peas ever been tried in the same way? But to return to the straw question. "I shall not," he says, "be able to use my straw by at least 75 tons. How can I convert it into manure? I I have not patience to wait for it to rot. Lime is too scarce, or I should scatter it over the stacks. Labor is too expensive to mix it with earth, and we have no muck."—Lime would not rot dry straw, and it certainly would not pay to compost straw with earth or muck. There is not enough ammonia in the straw. Rotted straw is straw still, and manure made from straw only is poor stuff. The whole trouble lies in raising too much grain. Keep a larger area of the farm in grass and clover. And it will not be many years before our friend will be wishing he had the straw that he formerly wasted. I should advise him to keep more sheep, but he says: "I commenced with 40 grade Merinos. Bought a South Down buck lamb for $31. Used him one season and then sold him for $6.50. Next paid $23 for a grade Cotswold, and now offer him for $5."—This is not very encouraging. And he adds rather pathetically: "Now, to get my flock up I have to pay large prices, and when I wish to sell there are no buyers in my vicinity. A common native is to them as good as the best thoroughbred."—I fear this is not an uncommon experience. But there is an easy remedy. Raise thorough-breds. Get the best and keep them pure. Be scrupulously honest. Do not look to your town nor county for customers, but to the intelligent farmers and breeders of the State. You can then snap your fingers at the prejudices of the farmers in the vicinity. A breeder is not without honor save in his own country. But to use a South Down one season and a grade Cotswold the next, is no way to raise sheep to sell for breeding purposes. They must be sold to the butchers, and if the sheep are good, the butchers will pay what they are worth. Even for this purpose it is foolish to pay $23 for *grades* when thorough-breds can be had for $100.

To keep only about a dozen head of cattle and horses, and forty sheep on a farm where, after using it with the greatest freedom, there is still 75 tons of surplus straw on hand, is poor policy *anywhere*, and more especially at the West, where, as compared with those of us who farm near the large Eastern markets, it must pay much better to raise stock than to sell grain.

"S. B. B," of Mo., writes: "I read your Walks and Talks in the *American Agriculturist* with a great deal of interest, and hope you will beat the Deacon in raising corn this year, as I believe in your method of cultivating it. I am making efforts to raise big crops of corn and want to ask a question: Prof. Nash, in his book called the Progressive Farmer, says: 'In the fall, haul ten loads of muck, leaf mould, peat, or sod, and compost with ten bushels of lime. In the spring haul ten loads of good yard or stable manure, and compost with the above mixture, adding ten bushels of plaster and ten pecks of salt. Turn well; and this applied to one acre of ordinary corn land will bring from 50 to 90 bushels of shelled corn per acre.' Now, plaster here costs $6 per barrel; and I wish to know if the salt and lime mixture will answer the same purpose?"—If the soil in Missouri is half as rich as I suppose it to be, I do not think I should spend much time in making composts to raise corn. It may be all very well on the poor soils of New England, where corn is worth twice or three times as much as it is in Missouri. The plaster will do just as much good applied separately to the corn as when mixed with the compost. But ten bushels per acre is an extravagant quantity. From one to two bushels per acre is the quantity we use here, and yet plaster costs less than $5 per ton. The lime will improve the muck, and so will the barn-yard manure. Possibly the muck may improve the manure. At any rate it will do it no harm, and I presume when good muck can be got at conveniently it will pay, even in the West, to draw it out and mix it with manure, or with lime. With the present price of labor I am not sure but the best way of using our muck is to drain the swamps and raise big crops of corn and grass on them, and use this grass and corn for feeding stock; and thus make manure for the poorer, upland portions of the farm.

A farmer in Ohio writes that a steel plow costs $25, and a cast-iron plow $11.50. His soil is sand and gravel, and the iron plow lasts only two years without repairing. He asks whether steel will be more durable in proportion to the cost. I think so. And then the steel plows do better work, are lighter and of easier draft, and can be used on adhesive soil where an iron plow would clog. And then there is a great saving in points—or ought to be. I say ought to be, for it is not every blacksmith who knows how to temper them properly. I sent one to a blacksmith who charged me 25 cents for sharpening the point, and nearly spoiled it into the bargain. They ought to be sharpened for about 5 cents; and by welding on a piece of an old file occasionally, a point will last several years.

"J. N. A.," of Mo., says he can get stable manure for the carting, two miles, and wood ashes from a saw-mill for the carting, three miles, and asks if it will pay. I wish I had such a chance!

Here is another letter from Missouri. I think the *Agriculturist* must have a large circulation there, and that the farmers are decidedly enterprising and intelligent. "F. A. N.," writes: "I think it would benefit all your readers, but especially us, Western farmers, who are remote from the Eastern markets, if you would give a full and detailed description of your harrows and cultivators. We have learned from the *Agriculturist* how to subsoil, to roll, to fallow, etc., but we are yet without proper means for fining our seed beds to as mellow a condition as we have them in the garden. Our common harrow and the Geddes harrow will not do it. We read of others and of cultivators. Mr. Harris speaks of a cultivator for four horses going nearly two feet deep. All these things are unknown to us. Still we want them and would like to know more about them so that we could order them of our dealers."—A cultivator going *two feet* deep is equally unknown to me. He must have confounded me with Horace Greeley, which is certainly complimentary. Possibly the printers made me say that my four-horse cultivator went two feet deep. Sometime since in reference to a New-York gentleman who wanted to improve his farm, I wrote: "A man with plenty of money can do anything." The printers made me say "A man with plenty of *manure* can do anything,"—which is not very far wrong after all. [The wonder is that the printers ever get any of your copy correct. Ed.] But I never had a cultivator that would go two feet deep; and should not use it if I had—until we got a steam-plow. I got a new forty-toothed harrow from Pennsylvania this spring that pleases me better than anything I have before used. But still, our harrows are not up to our requirements. We will endeavor to give this implement more attention.

"M. M. H.," writes from Indiana: "Please give me a description of the *Thin Rind Hog*. Also your opinion of its profitableness."—What will people get up next? All the good breeds of pigs have thin skins; small bone, and little offal,—such as the Suffolk, Berkshire, Essex, and Yorkshire, and there can be but one opinion as to their profitableness. Hogs in their wild state, and those that are worried with dogs and are otherwise exposed to rough treatment, need tough, thick skins; but a pound of such hide requires as much food to produce it as two or three pounds of nice, juicy ham—and this, because a skin to become tough and thick must be formed and reformed, and formed again several times; and each time a certain amount of food is required for its growth.

A farmer in Chester Co., Pa., writes that the risk of having their sheep killed by dogs is so great that many farmers have disposed of their entire flocks. He asks for a remedy, and has been told that putting bells on the sheep will scare away the dogs. I presume such is the case to a certain extent. The only real remedy is a tax on dogs, rigorously enforced. Whoever opposes such a tax should be held up to the scorn and contempt of all true men.

"You recommend in the *Agriculturist*," writes "J. P. K.," of Armstrong Co., Pa., "to cross the Chester Whites with the Berkshire. I have tried the experiment, and have got very good pigs. What name will I give them?"—Give them to the butcher! We recommended the cross, not for the purpose of forming a new breed, but to raise pork. The Berkshires are a thoroughly established breed, and it is doubtful whether such is the case in regard to the Chester Whites; and if so, the pigs from a Berkshire boar and Chester White or part Chester White sow would be *grade* Berkshires.

We have been weighing our Cotswold sheep to-day (Aug. 22). It is four weeks since we weighed them last, and the weather has been so hot that I thought they might not have gained much. The yearling ewes have had nothing but grass, except what grain they picked up on the stubbles. Here are the weights just as they come:

Nos.	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89
Wight July 24	135	130	107	112	128	137	148	135	115	123	162	149	152	107	140
Aug. 22	148	141	125	126	137	145	152	142	132	138	175	161	159	117	152
Gain in 4 we'ks	13	11	18	14	9	8	4	7	17	15	13	12	7	10	12

The following is the weight of the yearling rams:

Nos.....	34	35	36	39	41	42	43	44	45	47	49
W'ht Jul. 24	120	147	109	173	183	198	136	177	158	181	173
" Aug. 22	151	173	129	231½	211	217	160	200	180	210	193
G'n in 4 w'ks	22	26	20		28	19	24	23	22	29	20

Leaving out No. 39, about which I think there must have been some mistake in the weighing a month ago, these ten yearling bucks have gained on the average over 5¾ lbs. each per week, while the yearling ewes have gained only a little over 2¾ lbs. each. Why this difference? For the last six weeks I have given the rams about a pound of grain or oil-cake per day, while the ewes had nothing but grass. Previous to this, the rams have had no grain since

they left their winter quarters. I regret that I did not, for the sake of the experiment, give a few of the yearling ewes a little grain during the same period. But still the facts as they stand, forcibly illustrate the advantage and economy of feeding a little *extra food*. I presume the sheep ate no more nor no less grass than they would if they had had no grain; and that the extra growth of 3 lbs. per week is due to the 7 lbs. of grain and oil-cake. I confess the thing hardly seems possible, but such are the facts as revealed by the scales to-day. It is true that a period of four weeks is altogether too short to settle any question of this kind.

The lambs have done equally as well, or better. The *whole lot*, during the month, have gained a trifle over 4 lbs. each per week. They have had rich grass, and from $^3|_4$ to 1 lb. of grain and oil-cake per day. Two twin ewe lambs weighed, one $98^1|_2$, and the other $105^1|_2$ lbs.

One of the ram lambs which a month ago weighed $95^1|_2$ lbs., now weighs 115 lbs.; one of the ewe lambs that a month ago weighed 91 lbs., now weighs 108 lbs. The butchers as they ride past, cast longing eyes at these lambs, and one of them a short time since offered me $10 ahead for them. Of course I have no intention of selling thorough-bred lambs to the butcher; but I do not see why I cannot raise nearly as good grade lambs that would afford a very handsome profit at such prices. These lambs are less than six months old, and have had probably 100 lbs. of oil-cake, or its equivalent in oats, bran, etc., costing, say $2; the manure from which would be worth at least 75 cents. So that I really do not see why it will not pay to raise good lambs and *feed them well*. I believe it makes comparatively little difference which of the mutton breeds of sheep we select the ram from, *provided* he is only thorough-bred. The most important point is good and regular feeding. And this is equally true of cattle, sheep, pigs, and poultry.

How to give a Horse or Cow an Injection.

An injection of warm water or warm soapsuds, accompanied by blanketing and hard rubbing, is almost sure to relieve the colic in horses. An ounce of aloes, dissolved in a quart or two of warm water, injected into the rectum, removes the long, pale worm (*Teres lumbricus*) which often troubles horses. Pin worms are removed by the same treatment or by injections of Linseed oil. Costiveness is relieved by copious injections also. In colic, dysentery, and some other diseases, cattle require clysters, or injections, to be administered. The giving of injections to animals is often neglected, because farmers have no syringe at hand adapted to the purpose, and know of no other way of giving them. A few weeks ago Dr. Busteed, of the N. Y. College of Veterinary Surgeons, was describing to us the very simple arrangement

Fig. 1.—INJECTION APPARATUS—TIN.

which we show in the engraving, fig. 1. He has used this for twenty years in this country, notwithstanding the claim by Prof. Gamgee that the idea of so simple an injection pipe originated with him. This is a simple tin pipe turned at a right angle, 5 or 6 inches from the outer end. There is a moderate taper towards the small end, and at the end an accumulation of solder forming a smooth enlargement, so that there will be no injury to the horse by the end hurting the delicate membrane of the rectum. In use the pipe is inserted, the angle turned up,

Fig. 2.—INJECTION APPARATUS—WOOD.

the funnel placed in the end, and water poured in slowly so as not to carry air along with it. A pailful of warm water may be thus injected. Shortly after this conversation with Dr. Busteed, a horse of the writer was attacked with violent colic, and at that time not having a regular injection pipe, we took a glass tube a foot long, inserted it and closing the left hand over the end of the tube and the end of the funnel at the same time, found no difficulty in giving an injection, which relieved the horse, except the waste of some of the water and getting a little more than was agreeable into one's sleeve.

Another plan quite similar and superior in some respects, is shown in figure 2. Here a wooden tube is represented, any tube with a smooth, rounded end, will do; a rubber tube is slipped over it and a funnel inserted in the opposite end of the rubber tube. In case a mass of fœces or any obstruction should interfere with the free flow of the water, the funnel may be lifted as high as the rubber tube will permit, and this will cause quite a pressure of water—sufficient probably to overcome all obstructions. Usually, however, no pressure is required, and the flow is perfectly free, followed by a discharge of wind, dung, and urine, and by speedy relief. If a piece of strong, thick-walled rubber tube can be obtained, no wooden or tin pipe is necessary, for this tube, if well greased, is stiff enough to enter easily. The same instruments may be used for cows—and in the same way.

Every farmer ought to have something of the kind, and probably fig. 1, which is easily made at any tin shop, and not likely to be taken away or used for any other purpose, would be the best.

The Straw Crop—Rye.

The demands of the market change very greatly the relative values of crops. When straw was worth $3 to $5 a load it was of little moment whether rye stood three or seven feet high; in fact, it was an advantage to have short straw, as it saved labor in handling both in the field and at thrashing. We used to leave rye stubble as long as possible, and make good work, in order to be able to rake and bind without waiting for the weeds and grass at the buts to dry, to have the straw free from weeds and weed seed, and to have the sheaves of convenient size. We formerly burned over the stubble fields, and thus killed the weeds, destroyed the weed seeds, and manured the land with ashes at one operation. It is a rare sight nowadays in the Eastern and Middle States, to see a stubble field burnt over. We cannot afford to do it. Straw is worth 10 to 20 and even 30 dollars a ton, and a few weeds in the buts will not usually make half the proportionate difference in price that their presence adds weight. Straw is largely employed in paper making, and for this purpose it is of no consequence to have it long or straight; and paper mills, both at the East and at the West, make a good market for the straw of the vicinity. The demand for straw for stable litter in our large cities is very great in the livery, car, omnibus and express companies' stables. We estimate that it averages not less than five pounds of fresh straw to each horse daily. That which brings the highest price is handsome, straight straw, sold in ordinary bundles, which must be strongly bound. The straw peddlers of the large cities, at least those in the vicinity of New York, rebundle the straw, putting it in little handfuls, which may, perhaps, weigh three pounds, and which sell at 8 cts. each, or equivalent to over 50 dollars a ton.

Ice-house and Summer Dairy Combined.

Perfect control of the temperature of the dairy is a great step gained towards making the best butter. It is only by means of ice, or very cold spring water that we can keep the most de-

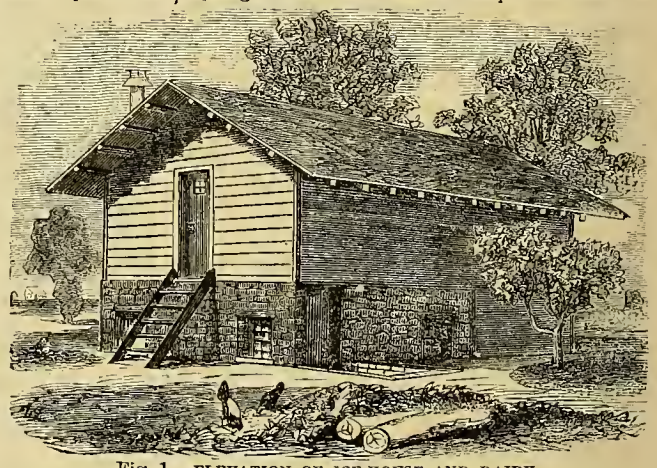


Fig. 1.—ELEVATION OF ICE-HOUSE AND DAIRY.

sirable temperature in very warm weather.—During most of the year there is little difficulty in maintaining sufficient coolness. In winter the problem is how to keep a dairy warm enough and not get it too hot. This is the battle with the weather that we wage almost the year round. In former years we have given numerous plans for ice-houses, both large and small, with cool rooms or refrigerators attached. We have lately had our attention called to the desirableness of a combination of the dairy and ice-house, and present the following plan which we deem entirely practical.

The plan proposes an ice-house above ground and a dairy half below; the ice room half covering the dairy, and the rest of the dairy being

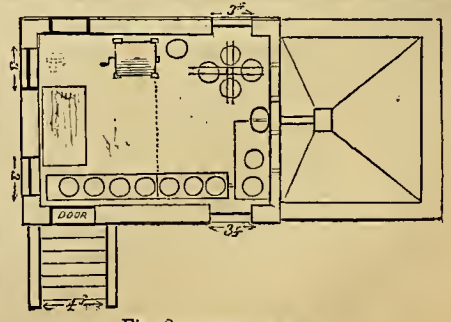


Fig. 2.—GROUND PLAN.

covered by a cool room, which forms the entrance to the ice-house. The exterior walls of

the ice-house are of wood, those of the dairy are of stone. The floor of each room is laid in cement with a slope sufficient to carry off the water. The drainage of the ice-house is collected and made to pass by a pipe, into a vessel in the dairy, where the end of the pipe is always cover-

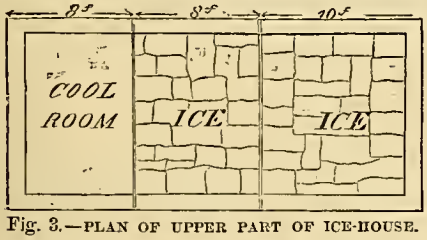


Fig. 3.—PLAN OF UPPER PART OF ICE-HOUSE.

ed with water. The water is allowed to flow through shallow troughs in which milk pans may be set. The amount of water would not be large, but it will be cold and ought not to be wasted. Its use will not interfere with the employment of water from springs or wells for the same purpose.

The building represented in the perspective elevation, fig. 1, is 28 feet long by 14 wide. The ice-room seen in figs. 2 and 3, is 10 × 12 feet on the ground, and about 12 × 16 feet, including the space above the dairy. The sides of the building are 9 feet above the ground, and the hight of the dairy 7 feet in the clear. The outside walls of the ice-house are made of 2-inch plank, 10 inches wide, set upright, having inch-and-a-half planks nailed on the inside, weather-boarded neatly on the outside, and filled with spent tan-bark or other dry, non-conducting substance. The partition wall between the dairy and the ice-house, and between the cool room and the ice-house, is half the thickness, and not filled. Thus forming closed air spaces between the studs. These spaces communicate with the dairy, by little doors near the floor and so currents of cold air may be established and perfectly regulated, entering the dairy on the side towards the ice-house. These, with a ventilator V, at the top of the room for carrying off

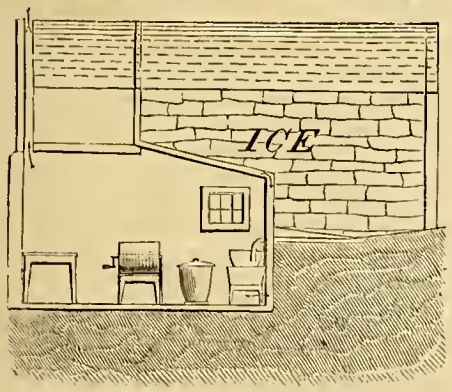


Fig. 4.—SECTION OF ICE-HOUSE AND DAIRY.

the warmest air, will surely cause the temperature to be easily governed. This description, with the engravings, sufficiently illustrate the idea to enable any good builder to carry it out.

Milk—or Milk and Water?

It seems an absurd question to ask, whether we want our cows to give milk, or, milk and water. Yet this is a pertinent inquiry, which every one who buys or breeds a cow should answer. We may divide cows into two extreme classes with reference to the *quality* of milk. To make the idea striking we say, one class gives *milk*, the other, *milk and water*; while if we have reference to the *quantity* of milk given, we find almost as great a difference in one class as in the other. The milk of those cows which give enormous quantities, say, 25 to 30 quarts a day, is rarely very rich. Ten to twelve per cent of cream being about as much as we have ever known the milk of such cows to yield. In some cases it is extremely poor, yielding four per cent, or even less. It is not only among the enormous milkers that we find the milk-and-water class of cows. They are plenty among cows which yield eight and ten, twelve and sixteen quarts a day; and there are thousands in the country valued by their owners as excellent milkers, which really yield only milk and water, and very thin at that. The milk is mixed with that of others at the time of straining, and the good wife never dreams that some poor, thin, bony, hungry cow, that gives only eight quarts of milk at her best, is producing a pound and a half to two pounds of butter a day, while the favorite of the herd, a whole three-quarters Durham, that gives ten quarts at a milking, does not add four pounds of butter a week to the family stores, yet it is true in many cases. We ought to know exactly what percentage of cream is yielded by the milk of every cow in the herd. The difference in the amount of cream and milk given by different cows does not by any means represent the different quantities of fodder consumed by each. One cow will increase her flesh and fat while another produces much milk upon the same food; and the question is often one of the desirableness of flesh on one hand, or milk on the other.

LACTOMETER.

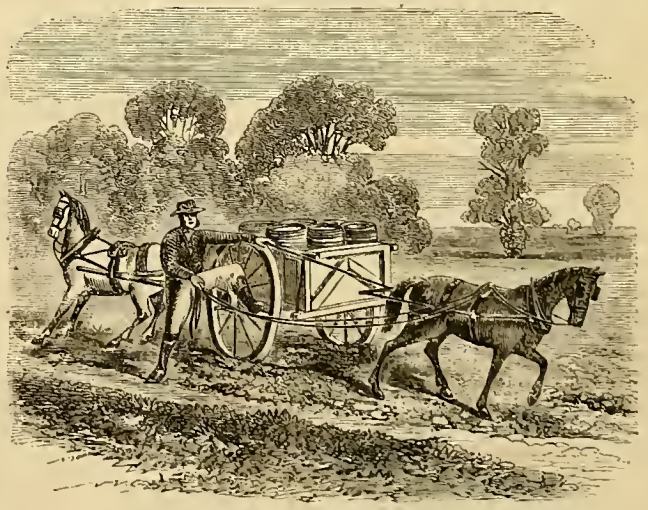
No doubt it is a severe tax upon the cow's system to secrete such great quantities of water as some do. Hence, one giving great quantities of milk poor in cream does not get fat upon the food she consumes, any more than the rich milker. Besides, the proportions between cream and curd vary greatly, so that we may consider milk to consist of three principles; viz., cream, curd, and water, either of which may be largely in excess of the others. For ordinary purposes it is enough if we know the quantity of cream; especially, as it gives a much higher value to the curd when made into cheese.—Our brief discussion of Lactometers in the June number, with the description of the very simple one used by Titus Oakes, Esq., elicited from a practical glass cutter, Mr. Wm. vom Hofe, of New York, this sketch of a very convenient one, which, while it is a little more expensive, has certainly some advantages over the simple tubes. It is a common, pint foot-glass, graduated to hundredths, besides indicating the fractions of a pint. With this it is easy to see at a glance, not only the percentage of cream, but the measure also, in denominations easy to be understood. For instance, if it be found that a pint of milk yields half a gill of cream, that statement is more clearly understood than if it were said that the milk contains 12½ per cent of cream. In comparing the milk of different cows it is essential that they be tested while feeding on similar food in the same pastures, and that the milk of the same milking be employed; for many circumstances cause considerable variations in the yield, and the test should be repeated when accuracy is an object.

Saving Fodder.

In many localities the drouth has made a short crop of hay, and though of excellent quality, it will not suffice to carry the ordinary stock of the farm through the coming winter. All the substitutes ever used for good hay will be wanted, and it becomes farmers to make the most of them. Oat and wheat straw that are often allowed to rot upon the ground, or are used for bedding, make a very good fodder, and should be carefully stacked or stored in the barn at the time of threshing. If cut and mixed with corn meal or with wheat bran, cattle will thrive upon the feed quite as well as upon good hay. Those who have sowed corn fodder abundantly, have a good substitute for hay. Save what is left from the fall feeding. Make the most of the fodder from the cornfield, which is often damaged from careless stacking. It is not yet too late to cut salt grass and bog meadows, that are often neglected from the abundance of other feed. To be sure there is not much nourishment in these grasses, but there is some, and when run through the cutter, and mixed with meal or roots they serve a good purpose. Carefully store the turnips that have been sown between the corn rows, or by themselves. It frequently happens that a dry summer is followed by abundant fall rains, which come in season to allow us to make a large turnip crop.

How to start or back a Heavy Load.

A team will usually draw a much heavier load than it can back, and the power of a man applied upon the wheel is an assistance constantly made use of both in starting and backing heavy loads. We have been observing with interest the six-horse and eight-horse teams drawing



BACKING A HEAVY LOAD.

immense blocks of granite for the foundation of the new post-office in New York, and have been surprised to see with what ease a single pair of horses would back the load which eight were required to draw. It was done in the way we indicate in the accompanying engraving; namely, by attaching the horses to the rim of the wheel near the top. Thus their power to move the load was doubled by the leverage upon

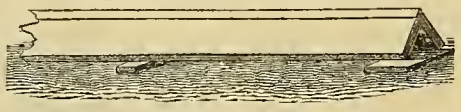
the wheel, and quadrupled by being applied first upon one side of the load, and then upon the other. This principle may be frequently applied upon the farm; and may save many an hour of hard work in ineffectual attempts to get a wheel over an obstacle, or to back a cart so as to turn in the woods, or elsewhere.

Eradicating Weeds. — Fallow vs. Hoed Crops.

A fouler piece of land than that we took in hand in the spring of 1869, we do not wish to see. It was just what might be expected on a farm rented to a slack tenant for eight successive years; potatoes hoed once, and corn twice, and a glorious crop of weeds allowed to go to seed every year. Charlock took the lead, and the only comforting thing about this was, that it was so thick that no other weed stood any sort of a chance. Ten days after stirring the soil the ground would be completely covered with this weed. Where oats were sown, the charlock grew so stout that the bloom made an unbroken sheet of yellow. About seven acres were planted with potatoes. Two weeks after planting, a lovely crop of charlock was in sight. We went over the ground with a bush-harrow, making a clean sweep of the whole crop. A few days later the potatoes began to break ground. We went through them with Share's cultivator throwing a very light covering over the tops, and completely scarifying the surface. The potatoes received three cultivations after this, and were dug partly with Allen's potato digger; making six crops of charlock and other weeds killed in one season by tillage. Another crop started vigorously but was cut off by the frost while in blossom, and before the seeds had time to mature. This made seven crops, and it was thought some impression ought to have been made upon the stock of seed in the ground. The ground was manured liberally with yard manure and sea-weed this spring, and planted with Early Rose potatoes. The weeds started as promptly as ever, but not quite so numerous. The spaces between the charlock seemed to widen a little. We pursued the same course with bush-harrow and cultivator, the charlock growing fainter hearted with every crop destroyed. The potato crop came off in July, and the land was immediately dressed with slaughter-house manure, and fish pomace, and sowed to turnips. This crop will smother the charlock, we think, if any remains. We know it to be practicable to destroy fourteen crops of weeds in two seasons without losing a crop. The cultivation was no more than the potatoes needed; and as the hoe was used but once in each season and that very slightly, the cultivation was not very expensive, and that expense is not to be charged to the weed crop, but to the potatoes. Fourteen crops might have been destroyed in one season by a fallow, harrowing every two weeks, but then this expense would have to be charged wholly to the weed crop, or to the cleansing of the land. On the whole, we are very well satisfied that foul land can be more economically cleansed with cultivated crops than with a fallow. In the fallow all our labor is a dead loss. If there is an ameliorating process in the stirring of the soil, we get that quite as well when crops are upon the ground. There is a choice of crops for this purpose, and there would be a great advantage in having a succession of crops so as to get ten or twelve scarifyings, instead of seven in a season. There is also an advantage in high manuring. The weeds start more rapidly, and we think a larger number of the foul seeds germinate and are destroyed every time the surface is disturbed. Potatoes are better than corn, because they can be planted earlier, and two crops of weeds can be destroyed before they are above ground. If these are early and are removed by the middle of July, there is ample time for a crop of the sweet German turnip, or of common white turnips. The plowing that occurs between the crops is of great advantage, especially if it be a little deeper than the spring plowing. It brings up a new stratum of soil to sprout its crop of weeds, and to be benefited by the atmosphere. The old adage, "One year's seeding makes seven year's weeding," is true enough, if you hoe but once or twice and let the weeds go to seed. But if you plan your crops so as to cultivate ten or twelve times, it puts another aspect upon the question. Every stock farmer we believe can raise potatoes and turnips at a profit, however distant he may be from market. If he is near, so much the better for him. We believe that clean land is a possible thing, and that it can be economically attained. *

Cheap Draining.

So many farmers are deterred from commencing to under-drain their land on account of the expense, that any device which will render draining cheaper has at least one merit; namely, that of inducing experiments to be made. Many a farmer has labor which at certain seasons is not fully employed, and by which he could do a good deal of digging. Stones perhaps are scarce, or, from all that has been said and read about the uncertainty of stone drains, perhaps he has a notion that they are really expensive to lay and not reliable. Tiles are only to be had at a great cost. The first cost is something; then to this must be added, water carriage, railroad freight, and cartage—all of which make a pretty big bill for a thousand feet of tiles. We alluded not long ago to the fact, that hemlock boards sawed into strips three and four inches wide, and nailed together so as to form a gutter, furnished a very cheap material for draining—a substitute for tiles, though not



WOODEN DRAIN.

nearly so good. However, they will last long enough to pay the expense of draining many times over. Mr. John S. Brower, of Keyport, Monmouth Co., N. J., has brought to the office of the *American Agriculturist* a model of an improvement on the wooden drains. It is represented in the accompanying engraving, and consists of narrow pieces of board nailed across the trough. In construction the trough is made first, then inverted upon the pieces of board and the nails driven perpendicularly. This makes the channels, or conduits, easy to handle, and they may be made up in the winter for use in the spring in needed quantities. The board supporting one end is twice as wide as the others, and serves as a rest for the next channel. In use, the earth soon fills up the bottom of the drain as high as the top of the cleats and so a smooth flow is not interrupted, while in case of a violent rushing flow of water which might wash the channel deeper, these have a tendency to prevent it, and to check any tendency to undermine the drain. Such drains have been laid in Monmouth County for many years, and have answered every purpose so far. If not submerged most of the time they are liable to rot of course, but this will not usually occur for six to ten years. Even when the drains are so much decayed that they cannot be taken up, but would crumble at the slightest touch, the earth will be found to have so compacted itself around them, that the flow of water will in many soils remain uninterrupted, and for aught one knows, in some it might be permanent. We advocate and fully believe in tile draining as cheapest and best in the long run, and as a rule, everywhere; but as before said, the first cost deters many who could cut the timber on their own place, and do all the work themselves except sawing the stuff.

Hints and Notions about Poultry Raising.

Everybody in the country keeps chickens. There is a close picket-fence around the garden, and the fowls have free range everywhere else, on nine-tenths of the farms. The hens begin to lay in the spring when warm weather comes on, and, as they find but few attractive places in the hedge-rows, they lay in boxes and barrels; in corners of the wood-sheds; in empty mangers, and sundry nooks about the barns and out-buildings. When they want to sit, they are not moved, but are set where they have laid, and no more is thought of them until one after another they come off with their broods. The hens are usually cooped, and the chicks run; the hen sharing the feed with the brood. The result is, that before the chicks are old enough to do well without maternal care, the hen begins to lay, and deserts or drives away her young ones. Such chicks are checked in their growth, and are never so large and fine as when cared for, for a longer time by the hen.

Later in the season the hens will "steal" their nests; that is, hide them away in the hedge-rows and bushes, under foundations, and in out-of-the-way places. If one is missed at the morning feeding time, it is supposed she is sitting; and in due time she will probably bring out a brood, hatching every egg of the 15 or 18 which she can cover. She will be let alone in all probability, and rear a beautiful brood of chickens, losing but few, if any, and allow them to follow her until long after she has commenced laying again. When she finally drives them from her they will be either accustomed to roost with her, or well able to take care of themselves by night and by day. The second brood will probably be the larger and better at Christmas.

The first brood, or any early brood, can not be given a free run with the hen, because the weather is too cold,—the nights are severe, the mornings wet or frosty, and rains are frequent. The only way that we know to prevent hens deserting their chicks too soon, is to starve them; giving the chicks plenty and the hens little to eat. Thus giving them a run in the middle of the day, but no feed, they remain attentive, careful mothers a long time. It is clear that the hen's own hunger suggests the wants of her brood, and if she is "warmed and filled," the conclusion to her mind is that they are so too.

When one of our readers takes a fancy for chickens, and wants to raise some pure breed, we notice he begins with the idea that he must build a new poultry-house, or in some way keep the whole of his flock of favorites shut up. Of course they will not be so healthy, nor do so well as the dung-hill fowls, to which he gives the range of his farm. Why not change, and shut up the common fowls, and let the others run?

Discouragement often comes from this cause. Another reason why young fanciers are discouraged is that they make a poor selection of the kind, best for them to keep. They select a variety that will fly like pigeons, and so destroy the garden; or they try to make heavy fowls roost six or eight feet high, and they bruise themselves and "bumble" their feet in flying down, and so get sore and lame. Yet another cause for discouragement is in attempting to keep several kinds pure. The result is, almost invariably, unless poultry breeding is entered upon as a business, or at least as an important part of farming, that before three years pass, all are running together promiscuously.

We advise every body that can do so to keep fowls, and to make a *fancy* of some particular breed. Nine out of ten ought to keep but one pure breed. All the cocks of the yard should be of this kind. When *careful* breeding is attempted, the cocks should all be separated from the hens, and towards evening the hens driven into separate enclosures, that each cock may be placed with his own hens. When they have gone to roost, they must again be separated. This course will be beneficial to the hens, because they will have a free run all the time, while it will be no less beneficial to their mates.

The breeds most likely to give satisfaction, where the winters are cold and the breeder is a novice, are Light Brahmas, Colored Dorkings, Cochins of any color except black, Houdans, and Guilders. To these we add, if ability to fly is no objection, Leghorns, and Dominiques. After a few years' experience, breeds will commend themselves to the fancier, according to his facilities and the fashion of the time. For there are always prevailing fashions among poultry fanciers, and these govern the value of fowls and the estimation in which they are held. The following breeds, while they require careful breeding, may be highly recommended as always useful and valuable: Dark Brahmas, Games, Black Spanish, all of the Hamburghs, all of the Polands, all of the French fowls, especially the La Fleche, and not omitting the Crevecœur. To meet with success as a breeder of Bantams, one must be a first-class fancier in the full meaning of that word—which, as we understand it, is one who brings to bear upon the rearing of breeds, which he fancies, all his skill and care, and all the knowledge he can gain, without regard to whether it pays or not.

Make the Pigs Fat.

Pigs are scarce and pork is likely to command a good price. A well-fatted pig brings at least two cents per pound more than one with bare kidneys and thin sides. Eight bushels of corn, with ordinary pigs, that have nearly attained their growth, should give us at least 100 pounds of growth. At 10 cents per pound, live weight, the present price for fat pigs in Chicago, this would give us one dollar a bushel for the corn. But this is not all. If we sell a pig not half fat, weighing say 250 pounds, we should get only 8 cents per pound, or $20. Keep this pig two months, and feed it eight bushels of corn and it should then weigh 350 pounds and bring, without any advance in prices, 10 cents per pound, or $35. In this way we get $15 for 8 bushels of corn, or $1.87½ per bushel.

During October, fattening pigs should be pushed forward as rapidly as possible. It is poor economy to feed them on nubbins, or soft, immature corn. Better give such corn to the cattle or to milch cows. But if it *must* be fed to the fattening pigs let them at any rate have one or two meals a day of sound corn. And take pains to induce them to eat as much as they can digest. The chief points in fattening pigs are: Comfortable quarters, a constant supply of water in a separate trough, regular feeding, and undisturbed sleep. As to how long it will be profitable to continue the fattening, we know of no better test than the amount of food consumed. A two hundred pound pig that is doing well will eat at least a bushel of corn a week—and if he eats more and digests it you may be pretty sure he is growing rapidly and is paying well for his feed; but as he gets "filled up" he will eat less, and so long as this is due to his being more quiet and contented, and to sleeping more, it is little or no disadvantage, but when it arises from loss of appetite, or impaired digestion, there is little profit in keeping him longer. A three hundred and fifty or four hundred pound pig, that cannot be induced to eat more than three quarts of corn meal a day, must be gaining very little and had much better be killed and put into the pork barrel.

Inland Water-Carriage in a small way.

Railways have thrown canals quite out of fashion the world over, yet every political economist knows that of all means of transportation of heavy goods, water-carriage is by far the cheapest. It is also the slowest. It may be used inland on rivers, brooks, canals, and lakes. We can, in fact, hardly have a steady flowing stream so small that it may not be so widened and deepened, that upon prevailingly level land it can not be used as a canal for flatboats and dug-outs. We associate with the word canal the idea of an artificial river, 30 to 100 feet wide, and capable of floating boats of several hundred tons' burden. A ditch eight feet in width, two feet deep, and half a mile long, connecting a farmer's barn-yard with his meadows at a distance, is just as much a canal as is the Erie; and there is hardly any limit to the service such a canal might be to some farmers. We have a farm in mind where such a ditch might be dug nearly a mile long; and while it would serve to drain the extensive meadows it would pass through, it would come at its lower extremity within eight rods of the farmstead, and might be filled in half a day at most seasons. This canal would probably require one lock, as the fall in the entire distance would be about six feet. Locks interpose but little difficulty when there is plenty of water. They involve, it is true, delay; but the small quantity of water necessary to float the boats ordinarily used makes it a small matter. On some of the canals in Germany, empty boats are drawn by a horse around the locks on rollers when the water is low. When locks are required, the canals are usually wider and the boats shorter and broader than otherwise. This is also necessary when very bulky loads will usually be put upon the boats; for it is easy to see that a very long and narrow boat would not carry a load of hay so well as one of grain or manure. Yet when they can be used, narrow ones are preferred, because they require so much less labor to draw, row, or pole them at a moderate rate of speed.

Not only might such canals be of great use on many inland and tide-water farms, but near our seaboard cities great quantities of vegetables might be easily transported to market, and return loads of manure obtained; two men only being required to manage a large boat, and the power of a single man on the tow-line being sufficient to draw six or eight tons at a comfortable rate of speed,—say two and a half miles an hour. One horse will draw upon a canal, fifty to seventy tons, two and a half to three miles an hour, as easily as he can draw 1,700 or 1,800 pounds upon wheels. A strong boat that will carry six or eight tons will cost not nearly so much as a common farm wagon.

Locks may be made a little wider and longer than the boats used, so that they will never bind, and should have plank sides and bottom, well caulked, and be packed around the outside of the lock with a puddling of clay uniformly moistened and well rammed beneath and around the channel. There should be a single door or gate, opening up stream, to close each end, and these gates may have a flap of rubber around their edges as a secure packing to prevent leakage; and there must be small gates to let the water in and out previous to opening the great gates. Locks are rather expensive, but need not be a serious obstacle if other things favor a canal.

The Muck Mines.

We shall lose one of the great blessings of the drouth if we fail to work the muck mines. On many farms these are laid bare for only a few weeks in the year, and then extra help should be employed to get out a large quantity for future use. We have tried this muck so long and so thoroughly, and derived so much benefit from it, that we shall make no apology for frequent allusion to it. We are fully persuaded that any farmer, who has one of these mines of peat or muck upon his farm, can make no better use of his capital than by working it. If he should get two or three years' stock on hand—a thousand cords or more, it will pay a good interest upon the investment. It is all the while improving by exposure to the atmosphere, and will be more valuable in the sties, stables, and yards. Well-cured muck alone is a valuable top-dressing for the meadows. It starts the grass earlier, it absorbs ammonia from the rains and snows, and helps to protect the grass-roots in the winter.—It absorbs moisture, and is one of the best safeguards against drouth for sandy and gravelly loams. Some samples of peat contain more ammonia than stable manure, and furnish large stores of plant food. We have rarely known a farmer who once got started in the use of muck, that did not continue. It is the little muck, like learning, "that is a dangerous thing."

Chestnuting—The Chestnut-Tree.

Many a reader will stop as he sees the fine engraving of a nutting party, which Mr. Perkins enables us to give on the following page, and recall the time in which he participated in such a scene. How vividly all presents itself in memory; the fine air of the clear autumn morning; the golden burs of the chestnuts shining against the dark green leaves; the pleasant "woodsy" smell; the climbing and beating the trees; the gathering the nuts; the pricking with the burs; the young companions—and all that go to make up a happy day at chestnuting. Leaving the picture to tell its story of a nutting frolic, we say a word in favor of the tree itself. The chestnut is neither the best of timber, nor the best of fuel, but it is valuable for both these uses. For fencing it answers an excellent purpose, and its lumber is now in great request for interior finishing. Its wood makes a valuable charcoal; its fruit is always in demand, and brings a good

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CHESTNUTING.—DRAWN BY GRANVILLE PERKINS.—*Engraved for the American Agriculturist.*

price. Two great points in favor of the chestnut are the rapidity of its growth, and the readiness with which it renews itself after being cut down. It grows freely in any soils that are not too wet, and is hardy over a wide extent of country, it being found native from the 43d parallel to as far south as Florida. The chestnut presents many claims to those who are interested in tree planting, not only as valuable for the treeless portions of the West, but for those lands of the East which can only be made remunerative by covering them with forests: the great obstacle to its introduction has been the difficulty of procuring the seed or the plants. The seeds are not usually kept by seedsmen, as they soon become worthless, and unless one has friends in a locality where chestnuts grow, they are not easy to obtain. As to the matter of plants, we notice that Messrs. Storrs, Harrison & Co., of Painesville, O., make a specialty of them, and offer them at moderate prices. Those who wish to grow the trees from the seed, should make arrangements to procure the nuts as soon as ripe, and they may be sown as soon as received. A wide drill is opened and the nuts scattered rather thickly, the spaces between them are to be filled by sprinkling soil among them, and then covering with two or three inches of leaves. In the spring the greater portion of the leaves is to be raked off, and when the young plants have grown an inch or two, fine soil is drawn up to them. Squirrels, gophers, and mice, will destroy the nuts if they discover them, and in localities where these pests abound, the seeds must be kept until spring. They should be mixed with three times their bulk of dry sand. They are said to retain their vitality if packed in perfectly dry moss. The chestnut can be readily transplanted if removed while young, and nursery trees that have been transplanted twice, the tap-root being removed, are quite as likely to live as most other deciduous trees. Our native chestnut is a variety of the European, differing in the size of its fruit. The fruit of ours is much smaller, but at the same time superior in sweetness and flavor. There is a great difference in the product of our wild trees, some of them yielding fruit twice the size of the average. There is no doubt that by selection and cultivation, the size of the nuts of the American variety could be greatly improved.

The Virginia Itea.

The Itea is one of several, pretty, native shrubs that have failed to find a place in our ornamental collections, probably for the reason that no dealer has seen fit to praise them in his catalogue. This spring we flowered the Itea for the first time, and though we had frequently seen the wild plant, were not prepared to find it such a pleasing addition to our collection. The shrub grows from four to six feet high, is much disposed to branch, and at the end of each small branch, bears a spike-like raceme about three inches long, of rather crowded white flowers. The flowers appear in June, and continue for a considerable time. The Itea is found along the coast from New Jersey southward, and naturally grows in wet places, though it flourishes well in almost any soil. It is readily increased by suckers and by seeds. The shrub does not seem to be well enough known to have received a common name; its botanical one, Itea, is the Greek name for the Willow, and is said to have been applied to this plant on account of the willow-like rapidity of its growth.

VIRGINIA ITEA.—(*Itea Virginica.*)

The Pyracanth Thorn for Hedges.

The Pyracanth Thorn, *Cratægus Pyracantha*, is a small evergreen shrub from the south of Europe. It is abundantly furnished with thorns and its small, horizontal branches terminate in sharp points. The foliage is of a rich green; its small white flowers are produced in great abundance, and are followed by small, red berries which are in such profusion and give such a glow to the plant during winter that the French call it *Buisson ardent*, or Burning-bush. Its berries are not much eaten by birds, and as they, as well as the foliage, remain on all winter, the plant is a very ornamental one. It is used in Europe for covering walls, and is sometimes grafted standard high upon the Hawthorn to make an ornamental tree. We are not aware that it is there employed as a hedge plant. In the southern portions of this country it has been thoroughly tested for hedging, and has been found to answer admirably; this and the McCartney Rose being the two favorite plants for live fences. The late Thomas Affleck, writing for Texas, considers the Pyracanth the most valuable for hedges for that country, and that it requires only one-fourth the care that the Osage Orange does. Unfortunately the plant is not hardy at the North, though it endures the winters near Washington. Some years ago a seedling Pyracanth sprung up in an English nursery, which bore orange-colored fruit, and plants of this were propagated under the name of White-fruited, as affording a pleasing contrast with the ordinary red-fruited sort. Frequently these varieties are not as hardy as the type; but Messrs. Parsons & Co., of Flushing, N. Y., have found the White-fruited Pyracanth to be more hardy than the red, it having in their grounds stood unharmed through the severest winters. It grows rapidly, and makes a most compact and impenetrable hedge. The Pyracanth is propagated by cuttings about six inches long, made in the fall, and set two-thirds of their length in the ground. The nursery bed should be mulched in summer, and the plants should remain in it for a year. The proper time to set the hedge is the fall, as the plants start very early and are impatient of removal in spring. In the engraving we give a small twig of the natural size to show its thorny character and the shape of the leaves; also, a cluster of flowers and one of fruit, both of which are smaller than in our common thorns.

WHITE-FRUITED PYRACANTH THORN.

Forcing Rhubarb.

BY PETER HENDERSON.

Forcing Rhubarb is one of the simplest of all our forcing or forwarding operations. The roots are dug from the open ground in fall, put close together in a box or barrel, and soil sifted in to fill the interstices between the roots; they are then placed in a situation where the temperature will range from 55° to 75°, with a moderate amount of moisture. By this treatment, Rhubarb may be had from January to April. The roots may be placed wherever there is the necessary temperature; light is not necessary at all, in fact the stalks of Rhubarb are much more crisp and tender when forced without exposure to direct light; hence the roots may be placed in the furnace room of a cellar, under the staging of a greenhouse, or in an early forcing grapery. A florist in Boston, a few years ago, told me that he had sold enough Rhubarb grown under his greenhouse stages, to pay his coal bill, (over $100), besides having all he wanted for his family use. Rhubarb is forced quite extensively by some of our market gardeners; the method pursued by them is to lift the roots from the open ground in the fall, place them as closely together as possible in such pits or frames as are used for hot-beds, but about two feet deep, sifting in soil so as to fill the spaces between the roots. On the approach of cold weather, the whole is covered over with a foot or so of dry leaves, and so remains until about the first of February, when the leaves are removed and sashes placed on the frames.—Sometimes this is not done until March, the sashes being then used which have been covering cabbage plants through the winter. But little ventilation is given to the frames at this cold season, as it is necessary to raise the temperature of the frame by the action of the sun's rays, so as to forward the crop. It greatly aids the forwarding if the sashes are covered up at night by straw mats or shutters to retain the heat.

Rhubarb so forced matures about one month

before it is marketable from the open ground, and averages about $10 for each 3x6 foot sash. It must be borne in mind, however, that forcing to some extent injures the roots, and for that reason it is only practised by those who have a surplus. By the system of propagating from seed, an account of which was given in these columns in March last, the roots may be procured at trifling expense. As then stated, three year's time is required for their maturity.

The Gigantic Digger-Wasp.

Every year we are in the receipt of specimens of a very large and showy wasp, which is the Gigantic Digger-wasp, *Stizus grandis*. The Digger-wasps belong to several genera, and are distinguished from the true wasps in not folding up their wings when at rest, in having generally oval eyes, and their legs furnished with numerous bristly hairs. They make their nests for the most part in the ground where they deposit their eggs, and the young are reared. One of the remarkable characters of the Digger-wasps is the manner in which they provide food for the larvæ, or young. The larva is carnivorous, and the parent wasp places in the cell with the egg a store of food sufficient to supply its wants until it attains its growth and undergoes its transformation to the perfect insect. This food consists of the bodies of various insects and spiders; in Texas there is a wasp which uses the Tarantula for the purpose. The Giant Digger-wasp uses the Locust (*Cicada*) as food for its young. The singular fact concerning it is that the wasp does not kill the insect, but stings it in a manner to paralyze it so that it can offer no resistance, yet leaving it sufficiently alive to remain in good eating condition for the young of the wasp. We give an engraving of the Giant Digger-wasp, from the American Entomologist for March, 1869, in which number of that excellent journal will be found an interesting account of numerous species of wasps which have similar habits.

GIANT DIGGER-WASP.

Plants that will Bloom in Winter.

BY PETER HENDERSON.

At this season of the year (the first week in October) in almost every section of the country, the flower borders are yet in profusion of bloom, and most of our lovers of plants are at a loss to understand why the Geranium, Verbena, Rose, Fuchsia, Heliotrope, and scores of other plants that have bloomed profusely during the summer months, cannot now be lifted, potted, and placed in the parlor or greenhouse, and continue to bloom there during the winter months. Experience tells us that such cannot be the case; there are few plants that can be lifted at this season without more or less mutilation of the roots, and this injury to the roots is what does the mischief. When a strong growing Rose or Geranium, for example, is dug up, it may seem to have been but little injured at the roots, but the feeding or "working roots," as we call them, are almost invariably torn off; and before the plant can recuperate, its ability to flower is suspended for months to come. For this reason, plants that we grow for cut-flowers in winter, are, with few exceptions, grown in flower-pots of size suited to their needs. As a rule, the diameter of the flower-pot should be the same as the diameter of the plant. The exceptions—plants that can be lifted from the open border and placed in pots, and that will bloom in winter, are the following:

Monthly Roses.—The plants sold by the florists for setting out in spring usually average from one to two feet in hight. Such plants, if lifted now with all the earth that will adhere to the "ball," and carefully potted, watered, shaded and kept cool for a week—during the month of October, outside in the open air is best—will bloom from January throughout the winter, if an average of 60 degrees can be maintained.

Carnations of all varieties may be treated precisely as directed above for Roses.

Geraniums may be treated in the same manner provided they were old plants when put out in spring and have remained stunted in growth; if they have grown luxuriantly and extended their feeding roots, then they will not be likely to do well.

Chrysanthemums, if carefully lifted, and kept cool and partially shaded out-doors until middle of Nov., may be had in bloom in the parlor or greenhouse a month later.

Double Neapolitan Violets may be lifted and treated in the same way; but be careful in all cases not to place them too soon under cover, no frost will likely be severe enough to injure them or Chrysanthemums before the middle of November. With tropical plants the case is different. If any of these are yet out in the borders, they must be lifted at once, and carefully shaded and watered and kept from getting chilled by covering with glass, at night at least, as soon as lifted. Of these best suited for winter flowering are the *Bouvardias* of all kinds, *Begonias* (winter flowering), *Poinsettias*, *Salvias*, and *Heliotropes*. But the same rule applies to them as to the hardier sorts; if they have not been plants of good size when planted in spring (1 or 2 year old plants) that have made but moderate growth, they will not do so well; at least will not flower as early for the reason that the fibrous roots will be injured in lifting. It may be taken as a safe guide that the stronger and healthier a plant looks in the fall as it grows in the open border, the worse it will answer to lift for winter flowering; while a stunted plant that has made but little growth is the better, for the reason that it has fewer feeding roots to injure.

The varieties of plants just named, such as Roses, etc., being hardy, need not be placed in the parlor, frame, or greenhouse, until the frost has been hard enough to kill down Dahlias, Heliotropes, etc. But those classed as "Tropical," should be protected as soon as lifted. They must have plenty of light and be watered sparingly until they begin to make white, or working roots, which may be ascertained by turning the ball out of the pot, handling it, of course, so carefully as not to disturb it. If a choice of temperature can be had, that for plants named as "Tropical" should range from 60° to 70°. That for those of the hardy section from 50° to 60°.

Treatment of a Diseased Pear-tree.

In the spring of 1869 a Bloodgood pear-tree in my garden had all the appearance of the disease called Yellows in peach-trees. I had just come into possession of the garden and am not able to tell the past history of the tree. About one-third of the tree was badly affected, and the tip ends of the branches in other parts were dead or dying. There was not a blossom upon the tree, though it had been there fifteen years or more. Considering the tree nearly worthless, I concluded to experiment with it, and cut off about one-third of the whole top close down to the trunk. The remainder was cut back severely, removing all the affected parts. The tree took a new start under this treatment; sent out vigorous shoots from the trunk below the large wounds, made a foot or more of wood at the ends of the branches, and formed blossom buds abundantly. This spring the ground was liberally manured, and the tree blossomed, and set with more fruit than it could mature. After some thinning I gathered a fine crop of pears, the first I ever raised of this variety, after repeated trials and failures. The wood of the Bloodgood does not seem to be healthy. It needs as much cutting back as the peach-tree, and requires a fertile, well-drained soil. On moist land the fruit lacks flavor. CONNECTICUT.

Notes from the Pines.

There was so much grading and road making to do last spring, that flower gardening did not receive as much attention as I intended to give it. Nevertheless I have managed to try a number of new things, and to grow others which, if not altogether new, I had never cultivated before. The drouth has been severe upon shrubs, but the subtropical plants have reveled in it.

COLEUSES have been very fine, and new ones have become so numerous that one can hardly keep track of them. The old Coleus Verschaffeltii holds its own by the side of all the new comers. A circular bed of it, edged with Artemisia Stelleriana makes a fine display. Of the many Golden Coleuses, Her Majesty has pleased me best; when the plants become old, and the leaves take on their peculiar bronzy tinge, they may be properly called "golden." Albert Victor, Baroness Rothschild, Princess Royal, and Queen Victoria, are all good, and somewhat alike, but differing in the width of the yellow margin and depth of the body color of the leaf.

THE GLORY PEA, *Clianthus Dampieri*, has afforded much satisfaction. I put out one plant that had been started under glass, and sowed seeds at the same time. The early plant spread over a circle of six feet in diameter, and by the time it was exhausted by its abundant bloom, those from the seed sown in place took up the work, and between them both we had an abundance of these gorgeous flowers from June until frost. Dr. K. trained his up to supports, and the red spider made havoc with them, and they soon stopped flowering, while ours, which trailed upon the ground, were not touched.

DOUBLE GERANIUMS.—It is likely that the days of single geraniums are numbered, as the recent double ones show qualities much superior to those first introduced. The Gloire de Nancy and some others, are too shy flowering. William Pfitzer is a free flowering dwarf, with a brilliant, light scarlet flower and a good truss.

Marie Lemoine is also a dwarf, and produces freely large, rosy-pink trusses—both capital.

TRITOMAS.—I am glad to hear from the dealers that the "Red-hot Poker-Plant" is becoming popular. Its long spike of scarlet makes a fine glow in the October sun. It may be kept through the winter with a little covering. Dr. K. had a fine clump of it; last fall he built a large box around it, which he filled with leaves, and put on a cover. Treated in this way, the plants were hardly checked; and this spring they were all ready to go to work, and bloomed in July. But who wanted "red-hot pokers" last July?—We were better satisfied to have ours come at a cooler season.

WHITE ZINNIAS—from some seed from Mr. Dreer, of Philadelphia, have attracted much attention. The flowers came very double, and in contrast with the scarlets and crimsons appear quite white, but when taken by themselves, they are only greenish-white. They are now very satisfactory, and no doubt by careful selection of flowers for seed, a pure white will be obtained.

THE TROPHY TOMATO.—Last spring I sowed the seeds of this new variety, and after setting out a row, had several plants over, which were given to some amateur friends. All theirs did splendidly, and so did ours up to just the point when the fruit should ripen. The soil on which they were placed was poor, and the drouth was quite too much for them. Such a setting of fruit was wonderful to see, but the promise was not fulfilled—in short, the crop was a failure. In such trials how cautious we should be not to praise or condemn from a single experience. I might honestly say of the Trophy, "I have tried it, and it is a failure." But it is n't, for there is my friend over the river, who had some of the same plants, but whose soil was better and who did not suffer so from drouth; he had splendid fruit. So with another, up at Englewood, to whom I gave a few of my seeds. I have seen Col. Waring's crop, and had fruit from Iona Island and several other sources, and am quite convinced—notwithstanding my own want of success—that the Trophy is by far the best tomato that I have ever seen or tasted for size, solidity, productiveness, and flavor.

GARDEN TOOLS.—There are two tools that seem to be about perfect. One is Swain's Lance-head hoe, and the other Hexamer's Prong-hoe. When one becomes accustomed to these, he finds it difficult to do without them. For loosening the soil after a rain, and all rather deep working of the soil that is to be done by hand, Hexamer's hoe is capital. The Lance-head hoe looks like an insignificant tool, but one who can handle it properly can do a wonderful amount of work with it; while for weeding and dressing the soil among plants which stand close, there is nothing that will equal it. It is a great improvement on the bayonet hoe, and should quite supersede it.

Bulbs and Bulb Peddlers.

To enjoy the earliest and most pleasing flowers the garden affords in spring, we must have some bulbs. Crocuses, Snowdrops, Hyacinths, Crown Imperials, Tulips, Jonquils, Bulbocodiums, and others, are so early and so welcome that we should hardly feel that we had a garden if they were wanting. "But they are expensive"—so they are, if you are a bulb fancier and wish named sorts, and the newest at that; but if one is a real lover of flowers and will be content to take good, but less novel things, he can get along with a moderate sum. The best way in this case is to disregard what the catalogues say in regard to names and colors, and send the sum to be devoted to the purchase of bulbs to a responsible dealer (see advertising columns), requesting him to send you an assortment of Crocuses, Hyacinths, or such kinds as may be desired. The selection being left to the dealer, he will be able to give more for the money than if specified varieties are named. The bulbs can go by mail, and when received they should be planted at once. It is best to make the bulb bed where it can be seen from the windows of the family room, so that the flowers may be the more thoroughly enjoyed. Have a good, light, rich soil, and if the bed is an oval one, put the taller growers in the center and the lower ones near the margin. As to size they will run, Crown Imperials, the tallest, Narcissuses, Hyacinths, Early Tulips, Bulbocodiums, Crocuses, and Snowdrops. Place the bulbs from two to four inches apart and cover from two to three inches deep, according to size. Before the ground freezes hard, put over the bed a few inches of coarse stable manure, leaves, or other litter, and let it remain until spring. Such a bed may remain several years without being disturbed. These directions will serve for those who wish to have early spring flowers, without regard to the niceties of bulb culture. Bulb fanciers need no directions from us. We like to see the products of their skill in culture, but still better do we like to see bulbs made "everybody's flowers." We have given advice how to buy bulbs. How not to buy them is of the bulb peddlers.

Just about these days, these gentlemen appear, and they generally come in pairs. One can "no English sprache," and his companion interprets and explains that his friend has just arrived with an invoice of Bulbs from Holland or Germany, as the case may be, and having no money, he is compelled to sell very cheaply. Then, if allowed, he will exhibit flaming pictures representing Hyacinths, Tulips, Lilies, etc., of marvellous size and coloring, such as nature has never yet dreamed of. He will sell you a blue Gladiolus or Tulip, or a scarlet Hyacinth, just as readily as he will those of their proper colors. They have trafficked largely in Japan Lilies of late years, since the interest has been so great in these. The Lilium Auratum, or Gold-banded Lily of Japan, was a great card with them when the bulbs commanded $5 each; and such was the specious talking of the rascals, that they occasionally imposed on florists and nurserymen, whose experience should have protected them. A well-known florist, of a town on the Hudson, purchased in 1867 one hundred of "Lilium Auratum" from a Bulb Peddler for $80, half in cash, and half in a note, which only was to be paid upon their proving true! The Lilium Auratum proved to be the common white lily, (*L. candidum*,) worth at wholesale $6 per 100. The peddler has not yet called for payment of the note, and Bulb Peddlers since that day have learned to give the establishment of our friend a wide berth. Another fellow had the audacity to palm off a bulb of the common Tiger, or Orange Lily, as a new Japanese novelty, for $5, on one of our best bulb experts in the City of New York—he does not like to hear of the transaction now from his friends. If professional florists are now and then swindled by these rascals, it may well be supposed that amateurs are easy prey. The Tuberose is a universal favorite with all classes who love flowers, but presents no variety of color—nothing but its own whiteness—but our bulb peddler is equal to the demands of our amateur friends, and supplies them with any required color. If by chance the "Blue" Tuberose turns out a hyacinth, or the "Scarlet" one a gladiolus, our bulb merchant is not usually at hand to discuss the question.

Insects on the Evergreens.

There are several insect enemies to the evergreens, and they seem to have been unusually abundant this year. We have noticed marked instances of their destructiveness in various places. The insects we have seen as well as specimens that have been sent, are the larvæ of a Saw-fly, several species of which infest the pines, spruces, and other coniferous trees cultivated for ornament. *Lophyrus abietis* attacks the Fir and Pitch Pine; *L. Abottii* is found upon the White Pine; and *L. Leconteii* infests the Scotch and Austrian Pines. Referring to works upon entomology for full descriptions, we briefly say that the perfect insects are only about one-fourth of an inch in length; the larvæ, which do the mischief, are from half an inch to an inch long, in the different species, and are yellowish with green, and in some, black stripes. The eggs are laid upon the leaves, and the caterpillars feed, often in considerable numbers together, upon the foliage, to the great injury of the tree. The one which infests the White Pine is often found as late as November. The larvæ when full-fed, spin tough cocoons either upon the trees, or descend to the ground and spin among the dead leaves, etc. They can only be attacked in the larva, or caterpillar state, and are said to be easily killed by carbolic soap, whale oil soap, or tobacco water. Many are destroyed by shaking them from the trees early in the morning when they are torpid. Being so small and so near the color of the leaves, the caterpillars are not usually noticed until the appearance of the tree shows that it has sustained some injury.

Trees on Sandy Soil, without Manure.

Mr. A. B. Allen, one of the original proprietors of the *Agriculturist*, has a place near the sea-coast in New Jersey, where the soil is very sandy, and manure in adequate quantities cannot be obtained. In a private letter to one of the editors Mr. A. gives some of the difficulties he has encountered in his attempts to establish a garden and ornamental grounds in such an unpromising spot. His management of the soil for trees promises good results; and as his method may be of use to others, we take the liberty of giving the substance of his account. Last fall the land was limed and marled and sowed to rye, using guano at the rate of 400 lbs. to the acre. This spring deep furrows were opened, seven feet apart, and young maple and other trees, about two feet high, were planted in the furrows. In May, when the rye was well headed out, but before the grain had formed, it was plowed under between the rows of trees, providing a mulch, and by the decomposition of the stalks and roots, furnishing food for the trees. Early in August he plowed again between the rows and sowed buckwheat with guano. As soon as the grain of the buckwheat began to form, this was turned under, and rye with guano sown again. This crop of rye will be turned under next spring. Trees treated in this way stood the drouth much better and grew more than similar ones which had been mulched

three inches thick with salt hay, while the cost of mulching was two or three times greater than that of sowing and plowing in the rye and buckwheat. In view of a recent statement that on account of the past summer's drouth the nurserymen at Geneva (N. Y.), alone lost upwards of $100,000 in small trees, Mr. Allen says: "Had they sown rye and plowed it in as I did, they would probably have saved all; and their rows need not have been over 4 ft., perhaps 5 ft. apart. Their land being rich, they would probably have had twice the growth of rye I had. It is almost impossible to mulch a nursery of over twenty acres, it would require so much hay or straw; but to grow rye between the rows they may easily mulch thousands of acres. Moreover, it keeps down the weeds, and saves the necessity of cultivation. The grain is not permitted to form, and above all, not to ripen; and the stalks and leaves which draw their nourishment mainly from the atmosphere, are added to the soil. The growth of the rye does not injure the growth of the trees, but when plowed in at the proper time, adds to, rather than detracts from the richness of the land."

A Native Potato.

Chili, Peru, and the neighboring islands are believed to be the home of our cultivated potato. The writer, while exploring the mountains of New Mexico, in 1851, was delighted to find, as he supposed at the time, the potato growing wild in that region. The plant appeared like a diminutive potato, and, as small tubers were found, it seemed very likely to be *Solanum tuberosum* in its original condition. Circumstances did not allow of the preservation and transmission of the fresh tubers, but dried specimens were made. It was found upon reaching home that the plant had already been described by Doct. Gray, as *Solanum Fendleri*, in honor of Mr. A. Fendler, who had just before made a botanical journey through New Mexico. This spring we received through the kindness of a friend a few tubers of the same Solanum, which enabled us to grow it. The plant is much smaller than the common potato, from which it principally differs in the nearly uniform size of the lobes of its leaves, as will be seen by the engraving taken from a living specimen. The friend to whom we are indebted for the tubers observed that it threw up, at a considerable distance from the main plant, stems which sprung from long underground runners. We have not noticed this tendency in our own plants thus far. Several who are curious in such matters have this Solanum in cultivation; and should cultivation lead to its improvement, our readers will be apprised of the fact. There is abundant room for amelioration, as the tubers of the wild plant are hardly as large as a boy's marble.

NATIVE POTATO.—(*Solanum Fendleri.*)

THE LOCUST AND AILANTHUS. — A New Jersey correspondent writes that he visited a Locust grove through which were distributed a number of Ailanthus-trees. The Locusts were 50 or 60 feet high, and had never been troubled by the borer, while trees not over a fourth of a mile off were badly injured. He asks if we or any of our correspondents have ever known the Ailanthus to protect the Locust from the borer. We have not, and it would be a most fortunate discovery if it were found to be the case, as it would, as our correspondent states, "add millions to the wealth of the country." He asks if we ever knew any insects to attack the Ailanthus. The Ailanthus silk-worm which was introduced into the country several years ago, as an experiment, has become thoroughly naturalized in New York and Brooklyn, and it makes havoc with the trees in some of the streets. There is also a web-worm, which lives in communities, and destroys the leaves. It is the larva of *Œta compta*, a small, but beautifully marked moth. We do not think that it is very abundant, as we only occasionally see it.

The Japanese Irises.

Last summer we saw in the garden of Mr. James Hogg, at Yorkville, N. Y., a bed of Irises, the roots of which had been sent from Japan, by his brother Thomas. The Iris in its various species is a favorite with us, and this one from Japan struck us as a charming novelty. The foliage is not glaucous, like that of the usually cultivated kinds, but is of a dark green, the leaves being about two feet long, and less stiff than in the common species. The flowers, instead of having the petals recurved in the usual manner, are flat, as shown in the engraving, where they are about a third less than the natural size. The colors range from white and the faintest lilac, through blue to deep purple, and present an agreeable variety in their veinings. The one on the left of the engraving was of a rich purple with golden markings in the center; and the one on the right was white, delicately veined with lilac. Many of the flowers show a strong tendency to become double. We have not been able to find a description of this species, but have the impression that we have seen it noticed somewhere as *Iris Japonica*. The plants are perfectly hardy. Some careful cultivator, by hybridizing this with other species, might produce some interesting results.

NEW JAPANESE IRISES.

FROSTS.—It is often the case that after a few frosty nights, we have many days of fine weather, and if plants can be protected during the early frosts, their season may be prolonged. Straw mats, a sheet, or even newspapers, supported above, but not touching, the plants, will protect them from the usual early frosts.

THE HOUSEHOLD.

☞ *(For other Household Items, see "Basket" pages.)*

Household Ornaments—Grass Bouquets.

The introduction of a number of annual flowers, which, when dry, retain their form and color, has made winter bouquets very popular. These everlasting flowers, as they are called, when carefully dried and made up with skill, form pleasing ornaments for the household; but at their best they are not, to our taste, so desirable as bouquets of dried grasses. Many of the grass bouquets that we see are failures, for the reason that the maker of them tried to crowd too much into them. A collection of the rarest and most elegant grasses, if tied into a bunch and crowded into a heavy vase, will fail to be pleasing. The beauty of grasses depends upon their ease and freedom from restraint. Some color the grasses or incrust them with alum crystals, processes which we do not think add to their beauty, however much it may to their showiness. Seeds of several kinds of "ornamental" grasses are to be had of the seedsmen, but few of these produce any thing more beautiful than may be found growing in the wild state. There are numerous wild grasses which are suitable to use in bouquets, but as they as a general thing have no common names, it is not worth while to enumerate them by their botanical ones. The best way is to collect whatever grasses seem suitable that we meet with in our rambles, tie them in small parcels and dry them in the shade in a place free from dust. Some berries of the Wax-work (*Celastrus*), and ferns dried between paper, or in a large book, will be useful to combine with the grasses. For a grass bouquet the great trouble is to find a suitable vase or receptacle. Those sold as flower vases are altogether too heavy in style to correspond with the airiness of the grasses they are to hold. Last year, in June, we figured a stand for cut flowers; something of this kind is most suitable for an ornament of dry grasses. As no water is needed, some such a stand could be very easily contrived. A glass tube or solid rod of glass, half an inch or a little more in diameter, and about two feet long, may be procured of the druggists or instrument makers. This is to be fitted into a round block of wood, heavy enough to answer for a firm base, and at its top furnished with a funnel or trumpet-shaped receptacle to hold the stems of the grasses. This receptacle may be covered with paper of some neutral tint, or may have mosses and lichens gummed upon it. For the pleasing arrangement of the grasses in such a stand as this no directions can be given; each individual can display her taste in the matter.

A BOUQUET OF DRIED GRASSES AND FERNS.

The aim should be to avoid all appearance of crowding, and allow each kind of grass to show its natural habit. The wooden base of the stand can be concealed by the dried fern-leaves, and cones, berries, and nuts may be introduced. Those who are fortunate enough to find the delicate Climbing Fern can add much to the beauty of such an ornament by twining one of its stems around the glass rod. We give an illustration of an ornament of grasses arranged in the manner we have suggested.

Mending and Making Over.

BY FAITH ROCHESTER.

Young girls often find a great deal of fascination in their crocheting and other fancy work, but look with horror upon the mending basket. But when they once learn to patch and darn *nicely*, they can find pleasure in such work, too. There is scope for a good deal of artistic talent in mending old clothes. For instance, if both knees of a pair of trowsers have grown ragged, put on, if possible, large patches of equal size, with corners rounded, and if of different stuff from the garment, of as harmonious color as you can find, making your stitches small and even; and I am sure both wearer and mender ought to find a certain gratification of taste in those patches. And so with a neatly executed patch or darn on any garment. It is worth while to learn to patch and darn *well*; but not worth while to spend much time mending old, coarse, every-day garments that will last but a short time after they once come to mending. A strong patch quickly sewed on with coarse thread is best in such cases; but I am often surprised to see how long a garment may be kept in use by a little patching—the "stitch in time,"—after it seems just about ready to throw by.

Stocking darning can be done more easily and smoothly by slipping a small, round or egg-shaped gourd, or a rubber ball, inside the toe or heel you are mending. Let your yarn start far enough back from the actual hole, to run the thin place surrounding it, at the same time that you fill up the hole. In crossing the threads weave them in evenly, like the dear old splint bottoms of our grandmothers' chairs—running your needle over one thread, then under one, alternating with the rows. Long cotton and merino stockings may be cut over of the same size, but with shorter legs, or of smaller size. Some women make all the stockings of the youngest members of their families in this way—and it must be confessed that they are apt to make the ankles too loose and bagging, but this is not necessary. Men's boots sometimes wear large holes in their socks when almost new, and in such cases good patches can be knit in, cutting out the hole square or oblong, taking up the stitches, and knitting on a patch as large as the hole. This may be darned down on the other three sides. New heels are often knit into old stockings by careful house-keepers. It is well to line the heels of men's coarse socks with strong drilling or denim.

A convenient darning bag is made in the form of an apron, with three or four deep pockets across the bottom. If brown linen or gingham is used, the apron may be cut off eight or ten inches longer than the desired length, and this extra length turned up on the apron to make the pockets, being stitched securely between the different compartments. There should be a large pocket for the ragged stockings of each week; a pocket for different kinds of darning yarn, including good shetland wool for nice merino stockings, and nun's cotton or floss, for fine cotton ones; also a pocket for pieces of old stockings, and cloth suitable for linings.

Every spring and fall there is some altering over to be done, and there is economy in it, to a certain extent. It does not pay to make over fabrics that are so tender with age that they will begin to crack and fall to pieces almost as soon as you have finished repairing them. But it does often pay to turn skirts of dresses upside down, or wrong side out, or front for back. Sheets that have grown thin in the middle will often last much longer than otherwise, if ripped open and sewed together on the other edges; and it is worth while to do this if you have a sewing machine, or little girls to do the over sewing.

Just here a word about sewing machines. They will not run themselves. So if you are overburdened with care and work, don't fancy that a sewing machine is going to relieve you. Better put out your sewing to some poor woman who has bought a machine, hoping to earn her living by it. I know a seamstress in a large town, who says she has more sewing brought to her from families where sewing machines are owned, than from families that are destitute of them. A sewing machine needs frequent use to keep it in the best order.

Some mending may be saved by making aprons for small children to button on the shoulders, so that they can be worn with either side in front. Leave the shoulders open a few inches down into the sleeves, for ease in putting the garment on and off. Children's drawers are best to be cut alike in front and back, the knees can be worn so much longer without mending. A great deal too much altering is done just to keep up with the changing fashions; but it is simply impossible for any woman of small means to keep up with fashion comfortably. Thousands of them are all the time trying it, however. We choose between "two masters" daily, though not always intelligently. In the effort to keep up with the times in outward adorning, we fall behind the times in mental culture. The cares of dress are *cares* as really as any others, and they write as deep wrinkles on our faces, but such wrinkles do not beautify old age like the lines traced by thought and affection. For the sake of beauty alone, if for no other reason, it is best to choose simple styles of dress, and to venture to be old-fashioned sometimes, and save time and thought for other objects.

Water in the House.

The best plan for having a supply of water in the house, is to have a tank, which was fully described in May last, on page 168. There are cases, however, where this is not practicable, and some other expedient must be resorted to. We gave in the Household Department in May, an account of the manner in which "W" brought water into the house. This gave hints to "M. R.," who says: "Not altogether liking the idea of a barrel overhead in the bath-room, from its liability to leak, and on account of the smallness of the room, I carried into effect the following plan: Our house is built of stone, with an offset caused by one part extending 10 feet further south than the other, thus forming an angle; there is a piazza in this offset, and in this angle, about 3 feet above the roof of the piazza, and of course outside of our bath-room, I placed a hogshead (first bound with iron hoops, well cleansed and painted) on boards laid on three strong joists. These joists rest on white oak scantling and are secured to each wall by having heavy irons made of worn wagon tire driven into the wall between the stones, four under each piece, thus making it perfectly safe and free of the roof. The water is carried into the hogshead by means of a short conductor, attached to the main spout at the corner of the roof of the house. A notch about 4 inches wide is cut in the top of the hogshead on the side from the wall, and has a piece of bent tin tacked in it, which projects far enough to allow the water to run out clear of the sides into another short spout to the one along the edge of the piazza, thence to the cistern under the kitchen; thus it will be seen that during every rain the supply in the hogshead is kept up without watching or waste. The water is drawn in the bath-room through a spigot soldered in one end of a ¾ in. lead pipe, running straight through the wall and into the hogshead 3 inches from the bottom. The bath-tub stands with one end under the spigot, the waste water being carried off through another lead pipe 1½ inches in diameter, running from the bottom of the tub through the floor in the corner of the room, and through the

wall into a tin conductor under the roof of piazza. The whole expense, bath-tub, hogshead, irons, paint, spigot, and pipes, was less than *fifteen dollars*. The tub is made of 1½-in. white pine plank, well white-leaded at the joints and fastened together with large screws, and painted inside and out with several coats. The holes through the wall of the house I made with chisel and crowbar, and (after inserting the pipes) masoned them up again in less than two hours, without any assistance. Altogether we think it a very cheap and convenient summer arrangement. For winter, we will not allow the water in the hogshead, for freezing would be likely to injure the pipes; but we think it will answer at least three-fourths of the year, as it has a southern exposure."

Preserving Crab-Apples.

BY "L. J. R.," PHILADELPHIA.

The fruit is prepared by first cutting out all decayed portions; then wash clean, and place in a kettle with sufficient water to cover the fruit entirely. Have a tight-fitting lid to the kettle and boil, over a moderate fire, until the fruit is soft enough to pierce with a straw; drain off the water, and strain through a coarse cloth or jelly bag, and set it aside for jelly. The apples, in boiling, will have burst their skins, which are easily removed; the cores are taken out by pushing them through from the blossom end, with a goose quill or a stick of equal thickness, being careful to press the stem end against the fingers to prevent breaking the apple. The fruit is now ready to preserve whole or to make into marmalade; for either, the proportions are: 4 lbs. of fruit, 3 lbs. of sugar, and 1 pint of water. Put the sugar and water into the preserving kettle, set it over the fire until it boils, then drop in the fruit, (if it is to be done whole,) boil until clear, and remove into a jar. If there is more syrup than will be needed, boil down to the desired quantity; pour it over the fruit while hot, and cover with a cloth, cut of sufficient size to cover and tie down. This cloth I dip into a cement made of two parts of bees-wax to one of rosin, adding enough tallow or lard to keep it from cracking. While the whole is warm, I draw the cloth tightly over the top of the jar and tie down. To make marmalade, the boiled fruit must be mashed to a pulp before being added to the syrup, and then boiled and stirred until it becomes clear, which is usually in half an hour.

For making jelly, I use equal portions of the water in which the fruit was boiled, (which has been previously strained), and sifted sugar. I seldom resort to the scales. One tumbler, *even* full, of sugar to one of the juice, gives the required proportions for all jellies; boil as for other jellies, and put up in the same way. Many persons fail in making jellies by endeavoring to boil too large a quantity at one time. I have always found better success with 2 quarts or less of juice at a boiling, than when I have undertaken more.

Hair Dyes—The Hair.

In August we published a report of an examination of hair dyes, stating that 15 out of 16 contained lead. The number of inquiries asking about the 16th one, which contained no lead, has been amusing. We might have saved a great deal of writing had we said that the 16th dye contained Nitrate of Silver, which is nearly as objectionable as lead. The receipt of so many letters upon the matter of hair dye leads us to ask, why dye the hair at all? There seems to be no efficient preparation for changing the color of the hair, which has not a metallic base, and which, by its continued use, is not likely to produce injury to the health. But leaving the question of health out of consideration, it seems to us an utterly useless practice. We say useless, because it deceives no one. A person who dyes the hair may think it so cleverly done that it will appear like the natural color. This is a great mistake, for any one with half an eye for color will detect dyed hair across the room or street. If the hair turns gray, let it be gray rather than sail under false colors. We cannot conceive of any argument for dyeing the hair that does not apply equally well to painting the cheeks. Yet many who color the hair would be horrified if any one should suggest the use of rouge.——A word about the treatment of the hair. There is much less use made of hair washes and the like, than there was some years ago, but much more than there ought to be. Having been in the way of knowing the composition of many of these, we can assert that as a general thing they are of no value except as they induce people to take care of their hair. Some thirty years ago a preparation called "Balm of Columbia," was exceedingly popular. It was an "herby" smelling wash, but it was a capital thing for the hair. The directions were to wet the hair thoroughly with the "Balm," and *brush with a stiff brush for half an hour*. The whole value of this celebrated "Balm" lay in these directions—and they are good to this day, though the stuff they accompanied has long ago passed to the limbo of things forgotten. There is wondrous virtue in a stiff hair brush, well applied. The majority of the brushes sold are poor things, fit only to polish the hair. Don't buy a brush by the back, but by the bristles; these should be unbleached and uneven—unbleached that they may retain their elasticity the longer, and set unevenly in order that the brush may penetrate better. Have a brush that will go through the hair, quite down to the scalp, and use it thoroughly, daily; and there will be very little need of anything beyond water as a hair wash. Avoid shampooing liquids, as they contain a strong alkali, which removes the dandruff, etc., it is true, but at the same time takes out the natural oily secretion of the scalp. Castile soap and water will be found quite as efficacious, though a little more troublesome in its application. A solution of borax is frequently used to cleanse the hair, and so is the yolk of an egg. Where the hair is brushed thoroughly there will seldom be any need of applying oil; though there are some whose hair is so very dry that a little oil seems a necessity, and beef marrow or a solution of castor oil in alcohol are frequently used. Glycerine dissolved in water or Bay-rum makes a pleasing hair dressing.

Rolliches—Tripe.

Some months ago a correspondent sent us a method of preparing tripe, which was essentially the old Dutch dish called Rolliches. It is now to be found in those parts of New Jersey where the Dutch descendants retain not only the customs, but the language of their ancestors. As we have mislaid our correspondent's article, we give the manner of preparing tripe in this form, as followed in one of the primitive neighborhoods above referred to. The tripe being well cleaned, is cut into large squares, a paunch making eight or ten pieces. Beef, fat and lean, is cut into strips as thick as one's finger, and as much laid upon each piece of tripe as this will conveniently envelop. Salt and pepper are sprinkled upon the beef as it is laid in, and then the tripe is sewed up so as to enclose the meat. The rolls are put into a pot with water and boiled gently until so thoroughly done that they may be penetrated by a straw; they are then removed from the water, put under a weight and allowed to cool. The fat being skimmed off, equal parts of liquor and vinegar are used to cover the rolliches, which are placed in a tub or other vessel. The rolliches are sliced and eaten cold, or warmed up with some of the liquor.

Odd Washing Fluid Recipes.

Among replies to our request some time ago for recipes for washing fluids, were some compounds containing ingredients that were quite useless, and whatever efficiency they possessed was in spite of, rather than because of them. One reads thus: Crude Potash, 1 lb., or 1 box of Concentrated Lye; Sal Ammoniac, 1 oz.; Salts of Tartar, 1 oz.; Boiling Water, 2 gallons. Mix, and when cool, put into a stone jug. Soak the clothes over night, soap the most soiled parts and boil in water, to every two pailfuls of which ¾ of a teacupful of the liquid has been added. The value of this mixture depends upon the potash or concentrated lye, which are carbonate of potash. Salts-of-Tartar is nothing but a white and pure form of the same thing, and the sal-ammoniac must be quite useless.

Another is: 1 gallon of water; 1 oz. Saleratus; 1 teaspoonful Tartaric acid; 1 do. Sal-Soda; 6 oz. Gum Tragacanth, or in case of no gum, 1 lb. of good bar soap. Dissolve together. This is said to be the "great $5 recipe." Saleratus and sal-soda are so similar that there is no advantage in using both. The Tartaric acid is worse than useless, as it is neutralized by the saleratus and soda, and in turn neutralizes them, and renders the mixture the less efficient. The gum tragacanth is just so much foreign matter to be removed in rinsing.

The oddest of all is 1 oz. White Vitriol, dissolved in a quart of water. Two tablespoonfuls of the solution to be mixed in a quart of soft soap, and this to be added to the water necessary to boil the clothes. This is 31 grains of white vitriol (sulphate of zinc) to a boilerful of clothes—a very small quantity, and as it is quite decomposed by the soap we are at a loss to see of what use it can be.

Hints on Cooking, Etc.

Pudding without Milk or Eggs.—By Mrs. Philip. Soak dry bread in as little water as possible, and squeeze out all the water. Add sufficient sugar to sweeten, and for a small pudding, half a teacupful of chopped suet or butter, and dried fruit which has been soaked over night, or canned or fresh fruit. Mix well together, adding a little allspice. The pudding is put into a greased tin pail, a cloth placed over, and the cover put on. The pail is set in a kettle containing sufficient water to come half way up the pail; boil for two hours, or more for a large pudding. To be eaten with sauce.

Apple and Tapioca Pudding.—By Armonck. Put a teacupful of tapioca into a pint and a half of cold water, over night. In the morning set it where it will become quite warm, but not cook. In the course of the forenoon peel half a dozen sour apples and steam them until tender. Put them in the pudding dish, add a teacupful and a half of sugar, a little salt, and a teacupful of water to the soaked tapioca, and pour over the apples. Slice a lemon very thin and distribute the slices over the top of the pudding. Bake slowly three hours. At the end of this time it will be a perfect jelly. Eat warm or cold, as you like.

Apple Jelly for Tarts.—By "W." Cut and core apples, without paring, cover them with water and let them cook slowly in an earthen dish until the apples look red; then pour into a bag and gently squeeze out all the liquid that will flow freely. Boil the liquor again about half an hour, then add half a pound of sugar to a pint of juice, and boil quickly for fifteen minutes. It will prove a firm, nice jelly, and requires but half the usual quantity of sugar.

Canaille Bread.—By Mrs. E. Lea.—Scald well two tablespoonfuls of Indian meal and add to it enough canaille to make a thin sponge with 2 quarts of milk, (or milk and water mixed). Add ½ a cup baker's yeast. Set this about 7 o'clock in the evening, and at bed time mix it stiff with canaille and two tablespoonfuls molasses. Bake in the morning.

Mrs. S. Buckley says: "I use canaille with buckwheat, or alone, mixed in the same way as that; I use it for common pastry, adding a little fine flour, and for molasses cakes. Minute puddings may be made by boiling any desired quantity of milk, and stirring in the canaille very gently to prevent lumps; let it boil a few minutes; eat with sauce, sugar and cream, or butter.

Aunt Eliza's Cake.—One cup of sugar, one cup of sour cream, nearly two cups of flour, and one teaspoonful of soda. Flavor as preferred.

BOYS & GIRLS' COLUMNS.

Jugglers in India.

BY "CARLETON."

One morning when I was in India I heard the beating of a drum and the squeaking of a flageolet under my window. It was not inspiring music. The drummer did not play with such spirit as some of the boys played who went into the army, and the flageolet had an unpleasant squeak to it. I was too weary with traveling and too tired of sight-seeing to look out to see what was going on. Besides it was a very hot day, and the mercury in the thermometer was up to one hundred and ten in the shade. I had my coat, vest, stockings, and shoes off, and was lying on a couch with a *punka* going backward and forward a few inches above my face. Do you ask what a punka is?—It is a great fan. India is a very warm country in summer, and the Europeans and few Americans who live there are obliged to resort to many expedients to keep cool. The Hindoos being natives of the country, can bear the heat; but foreigners from cooler climes wilt like a cabbage plant after being transplanted on a hot June morning. One of their contrivances for keeping cool is the punka, or fan. It is a heavy frame covered with cotton cloth and suspended by ropes from the ceiling, so that it can be swung just over your bed when you are asleep, or above the table when you are at dinner, or a little above your head when you are writing or reading. All Europeans living in India have punkas in their houses,—in bed-rooms, parlors, dining-rooms, and in their stores. When you go to church on Sunday you will see one swinging backward and forward over the minister's head while he is preaching; another over the singers, and a dozen over the heads of the people. They are kept in motion by Hindoo boys who stand or sit outside of the house, and who keep pulling a cord that goes through a hole in the wall, and is attached to a frame of the punka. There are two pullers to each punka who take turns through the day and night. Another contrivance is a fanning mill, placed outside of the house under the piazza, with a long spout entering a window. Two men take turns at the crank blowing wind into the building. If they did not raise the wind in some way it would be almost impossible for a foreigner to live there during the hot months of the year. The punka was going over my head and the puller was keeping time with the drummer when my Hindoo landlord, with a great white turban on his head nearly as large as a bushel basket, looked into my room and said, "Don't you want to see the jugglers?"—"Certainly."—I had heard a great deal about them and wanted to see them very much, and went out and sat upon the veranda while the jugglers went through their performances. There were three or four persons in the party who all made a low bow and then sat down on the ground. They were snake charmers as well as jugglers. They sat in a row, one beating the drum, another playing the flageolet, while a third had an anaconda coiled round one arm, and around his neck. The anaconda was about twelve feet long, and its wide, flat head was raised two or three feet above that of the Hindoo. It opened its mouth, ran out its tongue, and flashed its eyes and twisted its head about in such a snaky way that I did not like the look of him at all. A fourth had a large, greenish snake wound round his arm. One of the charmers made a low, clucking sound, and the slimy creature unwound himself, crawled down to the ground and started for the veranda to make our acquaintance. When he was almost up to our feet, the charmer made a different cluck, and the snake, after giving a hiss and running out its red-forked tongue, and flashing its fiery eyes, went back and coiled himself once more around the fellow's arm. There were two, large, earthen jars upon the ground and now as the charmer made another cluck, two cobras raised their heads above one of the vessels. The bite of the cobra is very deadly. The poison strikes instantly through the system, paralyzes it, and brings on death very quickly.

GROUP OF INDIAN JUGGLERS.

The charmer made a whispering noise and they came creeping over the side of the jar and wound themselves in coils upon the ground just as a sailor coils a rope upon the deck of the ship. There they were with their heads nearly a foot above the center of the coil, waving them backward and forward with their mouths wide open, and the two sharp fangs in their upper jaw exposed, their eyes flashing and their tongues in motion. Cobra de Capella is a Portuguese word, meaning hooded snake, and it is sometimes called the "hooded snake," because it has a sort of hood upon its head. The charmer struck at them with his fingers, and they struck back again. When they are enraged they show their anger by puffing up their hoods, by hissing, flashing their eyes, and striking at every thing near them. As the charmer continued to plague them they became very wrathful. How their eyes flashed! How their tongues went! And what a hissing they made! They seemed angry enough to strike their tormentor dead. They are very slow motioned, and as there was no danger that they would get at us, we sat and watched them with composure; besides we knew that the charmers had them under perfect control; for when they were as angry as they could be, he gave a low whistle which calmed them in a moment and sent them back into the jar. Then the charmer put his hand into another vessel and took out a dozen or more great scorpions. Their sting causes excruciating pain—far worse than that of hornets. These were as large as some of the crabs that live along our Ocean shores, and were ugly looking creatures; but he handled them as calmly as if they were canary birds, or white mice, or any other harmless thing. He hung them upon his ears, upon his bare arms as if they were bracelets, and the creatures never thought of harming him. It was wonderful to see the power of these charmers over such venomous creatures. There are some men in the world who are endowed by nature with remarkable power over the lower order of creation.

But these jugglers could do some very clever tricks—some that would puzzle you completely. They have one trick that the sleight of hand performers in this country never have been able to imitate. It is called the mango trick. I did not see it, but other men have witnessed the performance and I cannot doubt their word. The mango is a very delicious fruit, about the size of a Bartlett pear, with a flavor like that of the strawberry. It grows on a small tree. The juggler first smooths a place on the ground, places a basket over it and covers it with a cloth. Then he sits down beside it, reaches his arms under the basket, moves them slowly, as if working with his hands, singing a low song. After a while he raises the basket and you see a mango plant ten or twelve inches high, growing where a few moments before you saw only smooth ground! You think, perhaps, that he had the plant in the basket and set it out; but if you had examined the basket or the cloth you would have found no plant concealed. He puts the basket over the plant again, sits down once more and waits for the plant to grow. In a few moments he raises the covering a second time and you see a plant two feet high! Again he covers it, waits awhile to have it grow, and at the third raising you will see a ripe mango on the plant. He will present it to you and you can assure yourself by eating it that it is not a make believe, but genuine fruit!

Do you ask how it is done? I have not the least idea. Some months ago the editor of the *American Agriculturist* showed you how conjurors do some of their puzzling feats, but this mango trick of the East-India jugglers beats all others. Of course they do not make a plant grow there; it is only a trick; but the deception is so perfect that it seems to be a reality. If they could produce plants in that way they could beat nature; for it takes weeks and months for nature to grow a tomato plant or a cabbage, and years to produce a mango tree. If they could do it in reality it would be worth while to employ a few of them to raise crops when the crops were likely to fail; but there is nothing real in what they do.

But nature beats these jugglers at their own game. The cleverest sleight-of-hand performer in the world cannot do what nature is doing right before our eyes all the time—doing a million things more marvelous than the mango trick. Nature has no tricks; her performances are all real. The more we think it over the more we shall see that while the jugglers of the East are masters in the art of deception, Nature, on the other hand, is a more wonderful performer; and that all of her operations are real and worthy of our study and admiration.

No. 393. *Illustrated Rebus.*—Having an agricultural application.

No. 394. *Illustrated Rebus.*—A well known proverb.

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THE CORN-STALK FIDDLE.—DRAWN BY J. BOLLES.—*Engraved for the American Agriculturist.*

Here's fun! Not boisterous, rollicking fun, but fun in a quiet way—only four of you, and having a real good time. "Four?—I see only three,"—says some boy or girl. The fourth one is you who are looking at the picture. There is so much satisfaction in the faces there that we are sure you must feel pleased at seeing them. The boy with the fiddle is beaming with pleasure, because he knows he is amusing his little brother and sister. Happiness is very "ketching," as some old-fashioned people say,—almost as much so as unhappiness, about which we wont talk just now. How many of you ever saw a corn-stalk fiddle? Probably most boys who live on farms, but as there are a great many of our young readers who live in towns and villages, we shall have to tell them how it is made. You know that a corn-stalk has a great number of joints—places where the leaves start, marked by a slightly raised ring. There is a joint, several inches of stalk, another joint, another space, and so on from the bottom to the top. The stalk between the joints is not entirely round—a perfect cylinder like a piece of a broom-handle, but there is a broad, flat groove, which is first on one side of the stalk, and above the next joint on the other side, and so on alternately. Now to make a fiddle, we need three joints and two of the spaces between them. One of these sections, between two joints is the handle of the fiddle, and the other the body. Now for the strings; we take a knife and run it along the edge of the groove before spoken of, just beneath the surface so as to separate a shred of the stalk from one joint to the other. The same thing is to be done to the other side of the groove, and we have now two loose strings which are attached at each end to the joints. Now we must whittle out a couple of wooden pegs to answer as bridges, which we slip under the strings, thus stretching them quite tight—not too tight, or they will break. Then the bow—that is made just like the fiddle. Having made both fiddle and bow you may then play a tune with them—if you can. "What! can't you make music with it?"—Well, you can imagine it is music; at any rate it is a capital squeak. Music! it depends altogether upon who makes it, and whose ears listen to it. Don't you suppose it is music to those little ones who have watched their brother make the fiddle? After all it is not so much what we do, as the motive with which we do it, that gives happiness. Those little ones understand it, and the rude fiddle of their loving brother gives to them more pleasure than would Ole Bull himself.

Eyes made to Serve for Ears.

The unfortunate deaf and dumb have in some cases been taught to speak by patient instruction. They see the position of the lips and tongue of the instructor in making the various sounds, and try to imitate them. It is said that encouraging success has attended the attempts to make the dumb speak; and we are prepared to believe it from our knowledge of a little girl who was made completely deaf by a very severe illness. She was a remarkably bright little thing, and for a long time after her recovery her parents could not believe that she had lost her hearing. By watching the motion of her mother's lips she could understand what was said perfectly well. This ability to make her eyes answer the purpose of ears was cultivated with the greatest care, and the little girl, now a young lady, is well educated, thanks to the constant, patient teaching of her mother, having even been taught French, though unable to hear a word. There is no difficulty in holding a conversation with her, and she makes out even unusual words by watching the speaker's lips. Being unable to hear her own voice, her conversation is mainly in one tone, but, aside from that, one might be for a long time in her company and not notice her misfortune. It would seem that the loss of one faculty is, in a measure, made up by greater acuteness in others. The blind have the sense of touch highly educated, and make their fingers serve them for eyes to an extent that seems marvellous to those who can see. The case we have mentioned is another illustration of this. If you wish to know how acute must be the observing powers of the girl referred to, just stop your ears with your fingers and see how much you can understand of what is said to you.

Answers to Problems and Puzzles.

388 (Sept).—Do not reckon your chickens before they are hatched.—DO knot wreck-on-ewer chickens beef-o'er-they R-hatched.

389 (Sept).—Opinion is private property which the law cannot seize.—O-P-in eye-on-I S-private (soldier) property witch THE law can knot C's.

The numbering of 388 and 389 in Sept. should have been 391 and 392. That number 388 is an unfortunate one; it was attached to an Age puzzle in July, which had an important part left out of it. The puzzle should have read—One-half and one-fourth of my age added to my age, and 20 more, will make a sum three times my age—which was 16. Several, however, worked out the puzzle as it stood, and gave as the answer $8^{8}/_{9}$ years.

UNIVERSAL CLOTHES WRINGER.—

But one invention has held its own in the household, and that is the Clothes Wrioger. We have used one of those whose name heads this article, for *ten years*, and it has done good service during that time, although in weekly use. We consider the fact that the frame and all parts of the machine are made of wood to be in its favor. There can be no possibility of injury to the clothes by rust. Another advantage of this Wringer is that of a patent stop in the form of a screw, placed over the wheels, preventing them from getting out of gear. But the principal advantage of this Wringer over others is the patent double gear. This is the invention of the late Dr. Warren Rowell, and one of the best devices in mechanical movements that has come under our observation for a long time.—*N. Y. Mechanic, Dec.* 1, 1869.

THE Universal Wringer has been in use in our family for years, giving entire satisfaction. We speak whereof we know when we say it is one of the best labor-saving machines ever invented, having several points of superiority over any Wringer we have examined.—*New-York Liberal Christian, April* 2d, 1870.

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☞ The picture above mentioned and original letter may be seen at our office, also several of the damaged cans, as they came out of the fire.

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The Fairs for 1870.

State and National Fairs.

American Institute	New York	Sept. 7,	Nov. 4
Arkansas	Little Rock	Oct.	11-19
Cherokee Country	(Ga. & Ala.), Rome, Ga.	Oct.	11-12
Colorado	Denver	Sept. 27-	Oct. 1
Connecticut Poultry	Hartford	Nov.	1- 3
Cotton States	Augusta, Ga	Oct.	25-29
Georgia	Atlanta	Oct.	19-26
Illinois	Decatur	Sept. 26,	Oct. 1
Industrial Exposition	Cincinnati, O	opens Sept.	21
Indiana	Indianapolis	Oct.	3- 8
Kentucky	Henderson	Oct.	4- 8
Mississippi	Jackson	Oct.	24-29
New Brunswick	Fredericton	Oct.	4- 7
N. Y. State Poultry Soc.	N. Y. City	Dec.	14-22
North Carolina	Raleigh	Oct.	18-21
Northern Ohio	Cleveland	Oct.	4- 7
North-western Poultry	Chicago, Ill	Nov.	15-19
Ontario	Toronto, Canada	Oct.	3- 7
Oregon	Salem	—	—
Prince Edward's Island, Summerside		Oct.	7- 8
St. Louis Association	St. Louis, Mo	Oct.	3- 8
South Carolina	Columbia	Nov.	9-11
S. C. Institute	Charleston	Nov.	1- 5
Texas, Western	San Antonio	Oct.	5- 8
Virginia	Richmond	Nov.	— —
Woolen Exposition	Cincinnati, O	Sept. 21,	Oct. 15

Horticultural and Kindred Fairs.

Exeter Hort'l	Exeter, N. H	Oct.	5- 6
Pleasant Valley Grape	Hammondsport	—	—
Lake Shore Grape	Ohio	—	—
Penn'a Hort'l Soc	Philadelphia	—	—

District, County, and Local Fairs.

MAINE.

Androscoggin Co	Lewiston	Oct.	5- 6
Aroostook Co	Presque Isle, Houlton	Oct.	4- 5
Franklin North	Phillips	Oct.	12-13
Hancock Co	Bucksport	Oct.	4- 6
Kenebeck Co	Readfield Corner	Oct.	5- 6
Lincoln Co	Jefferson	Oct.	4- 6
Oxford	South Paris	Oct.	4- 6
North Knox	Warren	Oct.	11-13
Penobscot Co	Bangor	—	—
Waldo Co	Belfast	Oct.	4- 6
West Somerset	N. Anson	Oct.	11-12

NEW HAMPSHIRE.

Exeter	Rockingham Co	Oct.	6- 7

MASSACHUSETTS.

Barnstable Co	Barnstable	Oct.	4- 5
Berkshire Co	Pittsfield	Oct.	4- 6
Bristol Co	Taunton	Oct.	4- 6
Hampshire, Franklin & Hampden, North'm'n		Oct.	6- 7
Hampden Co	Springfield	Oct.	4- 5
Hampden East	Palmer	Oct.	11-12
Martha's Vineyard	West Tisbury	Oct.	18-19
Marshfield	Marshfield	Oct.	6- 7
Middlesex Co	Concord	Oct.	4- 5
Plymouth Co	Bridgewater	Sept. 29,	Oct. 1
Worcester North-west	Athol	Oct.	5- 6

VERMONT.

Wardsboro'	———	Oct.	5- 6
Wilmington	Windham Co	Oct.	16

CONNECTICUT.

Danbury	Fairfield Co	Oct.	5- 8
Fairfield Co	Norwalk	Sept. 27,	Oct. 3
Pequabuck	Bristol, Hartford Co	Oct.	5-
Woodbury	———	Oct.	5- 6

NEW YORK.

Albany Co	near Albany	Oct.	3- 7
Chautauqua Co	Westfield	Oct.	4- 6
Chenango Co	Norwich	Oct.	4- 6
Cuba, Valley Point	Alleghany Co	Oct.	4- 6
Kirkland Soc	Clinton	Oct.	4- 6
Livingston Co	Genesco	Oct.	5- 6
Monroe Co	Rochester	Oct.	5- 7
Suffolk Co	Riverhead	Oct.	5- 7
Susquehanna Valley	Unadilla	Oct.	5- 7
Washington Co	Salem	Oct.	5- 7
Yates Co	Penn Yan	Oct.	5- 7

NEW JERSEY.

Burlington Co	Mt. Holly	Oct.	4- 5
Cumberland Co	Bridgeton	—	—
Somerset Co	Somerville	Oct.	4- 6

PENNSYLVANIA.

Chester Co	West Chester	Sept. 29,	Oct. 1
Doylestown	Bucks Co	—	—
Franklin Co	Chambersburg	Oct.	5- 7
Huntingdon Co	Huntingdon	Oct.	4- 6
Northampton Co	Nazareth	Oct.	4- 7
Oxford	Chester Co	Oct.	5- 7
Sullivan Co	Forksville	Oct.	4- 5
Union Co	———	Oct.	5- 7

OHIO.

Anglaize Co	Wapakoneta	Oct.	5- 7
Butler Co	Hamilton	Oct.	4- 7
Carroll Co	Carrollton	Oct.	5- 7
Cincinnati Industrial	Cincinnati	Sept. 21,	Oct. 15
Champaign Co	Urbana	Oct.	4- 6
Clarke Co	Springfield	Oct.	11-15
Crawford Co	Bucyrus	Oct.	4- 7
Delaware Co	Delaware	Oct.	6- 8
Defiance Co	Defiance	Oct.	4- 7
Fairfield Co	Lancaster	Oct.	12-15
Greenfield		Oct.	12-14
Hocking Co	Logan	Oct.	7- 9
Licking Co	Newark	Oct.	4- 7
Logan Co	Bellefontaine	Oct.	4- 7
Mahoning Co	Canfield	Oct.	4- 6
Marion Co	Marion	Sept. 28-	Oct. 1
Miami Co	Troy	Oct.	5- 8
Monroe Co	Woodsfield	Oct.	2- 4
Morgan Co	McConnellsville	Oct.	4- 6
Northern Ohio	Cleveland	Oct.	4- 7
Orville	Wayne Co	Oct.	12-14
Perry Co	New Lexington	Oct.	5- 7
Richland Co	Mansfield	Oct.	4- 6
Sandusky Co	Fremont	Oct.	5- 8
Seville	Medina Co	Oct.	6- 8
Summit Co	Akron	Oct.	4- 7
Tuscarawas Co	Canal Dover	Oct.	4- 7
Van Wert Co	Van Wert	Oct.	6- 8
Washington Co	Marietta	Oct.	4- 6
Wellington	Lorain Co	Oct.	7-10
Wood Co	Perrysburg	Oct.	4- 6
Wyandot Co	Upper Sandusky	Sept. 28-	Oct. 1

MICHIGAN.

Calhoun Co	Marshall	Oct.	4- 6
Flint River	Montrose	Oct.	4 —
Genesee Co	Flint	Oct.	4- 7
Grand Traverse Union	Traverse City	Oct.	5- 6
Hillsdale Co	Hillsdale	Oct.	4- 7
Livingston Co	Howell	Oct.	4- 7
Leelenaw Co	Glen Arbor	—	—
Ottowa Co	Berlin	Oct.	4- 6
Sanilac Co	Lexington	Oct.	12-14

INDIANA.

Boone Co	Lebanon	Oct.	11-15
Cambridge City District	(10 Counties)	Oct.	11-15
Edinburgh	Johnson Co	Sept. 27-	Oct. 1
Gibson Co	Princeton	Oct.	11-15
Lake Co	Ross Station	Oct.	6- 8
Laporte	Laporte	Oct.	4- 7
Martin Co	———	Oct.	4 —
Morgan Co	Martinsville	Oct.	4- 6
Mooresville District	Mooresville	Sept. 27,	Oct. 1
Orville District	Orville	Oct.	12-14
St. Joseph Co	South Bend	Sept. 29,	Oct. 1
Thorntown Union (3 Co's)	Thorntown	Sept. 27,	Oct. 1
Union (4 Co's)	Edinburgh	Sept. 27,	Oct. 1
Warwick Co	Boonville	Oct.	11-15

ILLINOIS.

Centralia (District)		Oct.	11-15
DeKalb Co	Sycamore	Oct.	5- 9
Elgin (District)		Oct.	11-14
Franklin Co	Benton	Oct.	11-14
Fulton Co	Canton	Oct.	11-14
Marion Co	Centralia	Oct.	10-14
McHenry Co	Woodstock	Oct.	5- 7
Mercer Co	Aledo	Oct.	4- 6
Monroe Co	Waterloo	Oct.	12-14
Platt Co	Monticello	Oct.	6- 7
Pope Co	Golconda	Oct.	13-15
Pike Co	Pittsfield	Oct.	11-14
Saline Co	Harrisburg	Oct.	4- 7
Union Association	Centralia	Oct.	10-14

IOWA.

Butler Co	Shell Rock	Oct.	5- 7
Buchanan Co	Independence	—	—
Cedar Co	Tipton	Oct.	26-30
Chickasaw Co	New Hampton	—	—
Crawford Co	Denison	Oct.	7- 8
Fremont Co	Sidney	—	—
Guthrie Co	Guthrie Centre	—	—
Humboldt Co	Dakota	Oct.	5- 6
Jefferson Co	Fairfield	Oct.	4- 6
Jackson Co	Maquoketa	—	—
Lee Co	Fort Madison	Oct.	4- 7
Madison Co	Winterset	Oct.	5- 7
Mechanicsville Dist	Mechanicsville	—	—
Page Co	Clarinda	Oct.	6- 8
Union Co	Afton	Oct.	5- 7
Washington Co	Washington	Oct.	4- 6
West Liberty (District)		Oct.	4- 6

MISSOURI.

Audrain Co	Mexico	Sept. 27,	Oct. 1
Chariton Co	Keytesville	Oct.	11-15
Cass Co	Harrisonville	Sept. 27,	Oct. 1
Fulton	Lafayette	Oct.	11-14
Grundy Co	Trenton	Oct.	12-14
La Fayette Co	Lexington	Oct.	11-15
Marion Co	Hannibal	Sept. 26,	Oct. 1
Montgomery Co	New Florence	Sept. 27,	Oct. 1
Montgomery Co	Montgomery City	Oct.	10-14
Pike Co	Louisiana	Sept. 26,	Oct. 1
Platt Co	Platt City	Sept. 26,	Oct. 1
Ravenna		Oct.	19-21
St. Louis Co	St. Louis	Oct.	3- 8
Shelby Co	Shelbyville	Oct.	10-14
St. James District		Oct.	12-13
Vernon Co	Nevada	Oct.	11-15
Warrren Co	Warrenton	Oct.	12-15

KENTUCKY.

Fayette Co	Lexington	Sept. 27,	Oct. 2
Lexington Ag'l & Mech.	Lexiogton	Sept. 27,	Oct. 1
Nelson Co	Bardstown	Sept. 27,	Oct. 1
Ohio Co	Hartford	Oct.	4
Paducah & McCracken	Paducah	Oct.	11-14

WISCONSIN.

Northern Wis	Oshkosh	Oct.	3- 7
Richland Co	Richland Centre	Oct.	6- 7
South-western	Mineral Point	—	—
Vernon Co	Viroqua	Oct.	5- 7
Walworth Co	Elkhorn	Oct.	4- 6

KANSAS.

Anderson Co	Garnet	Oct.	5- 7
Northern Kansas	Atchison	Oct.	5- 7
Wabaunse Co	Alma	Oct.	13-14

TENNESSEE.

Haywood Co	Brownsville	Oct.	18-22
Lebanon		Oct.	5- 6
Tennessee	Nashville	Oct.	3- 8
Robertson Co	Springfield	Oct.	14-17
Shelby Co	Memphis	Oct.	18-21

ARKANSAS.

Pulaski Co	Little Rock	Oct.	11-14

GEORGIA.

Georgia Central	Macon	Oct.	3- 8
Putnam Co	Eatonton	Oct.	12-14
Muscogee Co	Columbus	Nov.	1- 5

ALABAMA.

Cent'l Ag'l & Mech'l	Selma	Nov.	8-11
Lauderdale Co	Florence	—	—

MISSISSIPPI.

Attala Co	Pilgrim's Rest Church	Nov.	9-
Jefferson Co	Fayette	Oct.	18-21
Warren Co	Vicksburg	Oct.	25-28

VIRGINIA.

Angusta Co	Staunton	Oct.	18-20
Lynchburg	———	Oct.	11-14
Shenandoah Valley	———	—	—
South-west Va	Wytheville	Oct.	4- 7

OREGON.

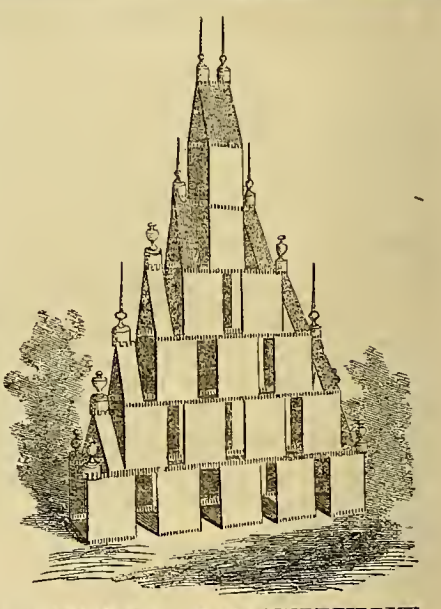
Columbia District	Dalles, Wasco Co.	Sept. 28,	Oct. 1

TEXAS.

Washington Co	Brenham	Oct.	11

DOMINION OF CANADA, ETC.

Bruce South	Walkerton	Oct.	11-14
Hastings West	Belleville	Oct.	12-13
Hastings North	Woodstock	Oct.	3- 4
Northumberland West	Coburg	Oct.	18-19
Norfolk	Simcoe	Oct.	13 —
Oxford South	Otterville	Oct.	11-12
Proton Soc	Cedarville	Oct.	6 —
Simcoe		Oct.	11 —
Wentworth & Hamilton	Hamilton	Oct.	12-13
Wellesley	Wellesley	Oct.	3 —
Yarmouth, Nova Scotia		Oct.	6



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Tulips, early double, fine mixed unnamed	75
Tulips, early single, fine named varieties	1.50
Tulips, early single, fine mixed unnamed	75
Tulips, Parrot, fine mixed, unnamed	75
Tulips, Bybloemen, bizarre and rose, fine mixed	75
Tulips, various sorts mixed, unnamed ($5 per 100)	75
Crocus, mixed, blue, white, yellow ($1 per 100)	15
Crocus, finest named varieties ($2 25 per 100)	30
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Iris, English and Spanish, fine mixed varieties	75
Ranunculus & Anemones, fine mixed varieties	50
Gladiolus, hardy, fine mixed varieties	1.00
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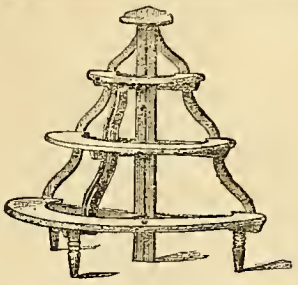

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We supply the paper at less than it costs to make it, but the great circulation secures a large advertising patronage, and so we have a profit, and a margin to expend in Premiums for those who procure subscribers. And by the plan we adopt, we can afford *pretty* **large pay.** The subscription price is so small compared with the cost, that it would not pay agents to travel, even if we gave them a quarter or third of all they got. But we select a large number of *good and useful articles*, such as are wanted generally, and then by large wholesale purchases for cash, and by the favor of manufacturers who are pleased to have their articles prominently placed before the public, and also by favorable advertising arrangements, we offer *much larger pay*, than if cash were given, while the articles are really worth fully the regular cash price. (In every case we print just the selling cash price against each article.) Many canvassers for subscribers receive the premiums, and sell them for the full cash price, and thus realize *large pay* for their time.

The Table in the next column shows just how many subscribers, sent in by any person, will secure any premium. The names can be sent, one or more at a time, from now to June. (*Any premium will be given as soon as names enough are sent in.*) One column gives the number to be sent at the regular price ($1.50 a year), and the other how many at the lowest club rate for 20 ($1 each).

Nearly 10,000 Persons have heretofore made up Premium Clubs, and received these articles, and while most of them have acknowledged their receipt, and expressed their great gratification, we have never heard of half a dozen complaints, and these were from some misunderstanding or misconception, usually very soon rectified.

In *Every Neighborhood,*
At *Every Post-Office*
In *The United States,*
In *British America,*
In *The Sandwich Islands,*
In *Far Off Australia,*
And Elsewhere,

Premium Clubs can be readily made up by any person having a little enterprise. (Many clubs, sometimes numbering 100 and upward, come from British America, Australia, Africa, etc.)

READER, You can Easily get one of these desirable Premiums.

Look over the list and the descriptions following, select the Premium you most need, take a copy of the paper and show it, and you will soon have the list and receive the Premium *free.* IT CAN BE DONE WELL THIS MONTH, for subscribers sent now, get the paper the rest of 1870 *free*, which will help canvassers who begin at once. **TRY IT.**

Read and carefully Note the following Items: (*a*) All subscribers sent by one person count, though from one or a dozen different Post-offices. But....(*b*) State with each name or list of names sent, that it is for a premium....(*c*) Send the names as fast as obtained, that the subscribers may begin to receive the paper at once. You can have any time, from one to six months, to fill up your list....(*d*) Send the exact money with each list of names, so that there may be no confusion of money accounts....(*e*) Old and new subscribers all count in premium clubs, but a portion, at least, should be new names; it is partly to get these that we offer premiums to canvassers. N.B.—The extra copy to clubs of ten or twenty is not given where premium articles are called for....(*f*) Specimen Numbers, Cards, and Show-bills, will be supplied free as needed by canvassers, but they should be used carefully and economically, as they are very costly....(*g*) Remit money in Checks on New-York Banks or Bankers, payable to order of Orange Judd & Co., or send Post-office Money Orders. If neither of these is obtainable, Register Money Letters, affixing stamps both for the postage and registry; put in the money and seal the letter in the presence of the Postmaster, and take his receipt for it. Money sent in any of the above ways is at our risk.

[In the following table is given the price of each article, and the number of subscribers required to get it free, at $1.50 a year, also at the lowest club rate of $1 a year. The descriptions of the articles are given in the pages following.]

Table of Premiums and Terms, For Volume 30—(1871).

Open to all—No Competition.

No.	Names of Premium Articles.	Price of Premiums.	Number of Subscribers required at $1.50	at $1.
1	*Knives and Forks (Patterson Bros.)*	$14 00	21	70
2	*Knives and Forks* (do. do.)	$18 50	27	90
3	*Knives and Forks* (do. do.)	$32 00	33	110
4	*Knives and Forks* (do. do.)	$25 50	39	124
5	*Carver and Fork* (do. do.)	$3 00	13	37
6	*Fluted Steel* (do. do.)	$2 50	6	25
7	*French Cook's Knife, Fork, and Steel*	$3 00	8	30
8	*Pocket Knife* (Smith & Clark)	$1 50	4	
9	*Pocket Knife* (do. do.)	$3 00	5	22
10	*Pocket Knife* (do. do.)	$2 50	6	25
11	*Ladies' Pocket Knife* (do. do.)	$2 00	5	22
12	*Tea Set* Hart's best Silver-plated	$50 00	66	225
13	*Castors and Fruit Basket* (do. do.)	$30 00	44	140
14	*Cake Basket,* (do. do.)	$12 00	19	65
15	*Revolving Butter Cooler,* (do. do.)	$8 00	16	52
16	*Ice or Water Pitcher* (do. do.)	$18 00	27	90
17	*One Dozen Teaspoons* (do. do.)	$6 00	15	45
18	*One Dozen Table Spoons* (do. do.)	$12 00	19	65
19	*One Dozen Table Forks* (do. do.)	$12 00	19	65
20	*Child's Cup* (do. do.)	$2 75	7	27
21	*Gold Pen, Sil. Case, (George W. Hawkes)*	$3 25	8	30
22	*Gold Pen and Silver Case,* (do. do.)	$5 00	12	37
23	*Gold Pen, Handle gold-tipped,* (do. do.)	$6 00	13	37
24	*Ladies' Gold Pen and Rubber Case* (do.)	$6 00	13	37
25	*Lozo Pendulum Board*	$10 00	18	58
26	*Amusette*	$6 00	13	37
27	*Garden Seeds for a Family (40 kinds).*	$5 00	12	33
28	*Flower Seeds for a Family (100 kinds).*	$5 00	12	33
29	*Garden Seeds & Flower Bulbs (Selection)*	$2 00	5	22
30	*Nursery Stock (any kinds desired)*	$20 00	30	97
31	*Set of Field Croquet*	$8 00	16	52
32	*Sewing Machine (Grover & Baker)*	$5 00	60	240
33	*Sewing Machine (Florence)*	$63 00	70	275
34	*Sewing Machine (Willcox & Gibbs)*	$55 00	60	240
35	*Washing Machine (Doty's)*	$14 00	21	70
36	*Clothes Wringer (Best—Universal)*	$10 00	18	58
37	*Melodeon, 4-octave (G.A.Prince & Co.'s)*	$67 00	78	295
38	*Melodeon, 5-octave* (do. do.)	$112 00	188	400
39	*Piano, Splendid 7-oct. (Steinway & Sons)*	$625 00	520	1550
40	*Silver Watch (American Watch Co.)*	$40 00	50	150
41	*Ladies' Fine Gold Watch (Am. Watch Co.)*	$100 00	110	350
42	*Frank Wesson's Breech-loading Rifle*	$30 00	44	140
43	*Breech-loading Pocket Rifle*	$16 00	24	80
44	*Maynard's Combination Gun*	$55 00	60	240
45	*Double Bbl. Gun, (Cooper, Harris & H.)*	$30 00	46	150
46	*Tool Chest (Patterson Bros.)*	$45 00	60	199
47	*Case of Mathematical Instruments*	$9 00	16	55
48	*Case of Mathematical Instruments*	$15 00	22	75
49	*Charles Pratt's Astral Oil (1 can, 5 Gal.)*	$4 00	9	32
50	*Barometer (Woodruff's Mercurial)*	$10 00	18	58
51	*Barometer (Woodruff's Mercurial)*	$15 00	22	75
52	*Buckeye Harvester Mower*	$125 00	150	450
53	*Patent Cylinder Plow (R. H. Allen & Co.)*	$18 00	27	90
54	*Collins & Co.'s Cast Cast-Steel Plow*	$25 00	38	120
55	*Hand Cultivator and Weeder (Comstock)*	$9 00	17	54
56	*American Submerged Pump*	$2 00	19	65
57	*Pump and Sprinkler (Page's)*	$5 00	13	37
58	*Family Scales (Fairbanks' & Co.)*	$14 00	21	70
59	*Building Blocks (Crandall)*	$2 00	6	20
60	*Pocket Lanterns (One Dozen)*	$9 00	17	54
61	*New American Cyclopædia (Appleton's)*	$80 00	96	325
62	*Worcester's Great Illustrated Dictionary*	$10 00	18	58
63	*Eumelan Grape Vine, No. 1*	$1 00	3	....
64	*Eumelan Grape Vine, Extra*	$2 00	5	....
65	*Double Harpoon Horse Hay-Fork*	$10 00	18	58
66	*Any Back Volume Agriculturist* (Unbound, Post-paid.)	$1 75		20
67	*Any Two Back Volumes* do.	$3 50		29
68	*Any Three* do. do. do.	$5 25	13	37
69	*Any Four* do. do. do.	$7 00	15	47
70	*Any Five* do. do. do.	$8 75	17	54
71	*Any Six* do. do. do.	$10 50	19	61
72	*Any Seven* do. do. do.	$12 25	21	68
73	*Any Eight* do. do. do.	$14 00	23	74
74	*Any Nine* do. do. do.	$15 75	25	80
75	*Any Ten* do. do. do.	$17 50	27	86
	—(Each add'l Volume at same rate)			
76	*Fourteen Vols. XVI to XXIX* (Unbound, Post-paid.)	$24 50	34	110
77	*Any Back Volume Agriculturist*	$2 50		24
78	*Any Two Back Volumes* do.	$5 00		36
79	*Any Three* do. do. do.	$7 50	16	48
80	*And Four* do. do. do.	$10 00	18	60
81	*Any Five* do. do. do.	$12 50	21	71
82	*Any Six* do. do. do.	$15 00	24	82
83	*Any Seven* do. do. do.	$17 50	27	92
84	*Any Eight* do. do. do.	$20 00	30	102
85	*Any Nine* do. do. do.	$22 50	33	110
86	*Any Ten* do. do. do.	$25 00	36	116
	—(Each add'l Volume at same rate)			
87	*Fourteen Vols. XVI to XXIX* (Bound. Post-paid.)	$35 00	47	143
88	*A $10 Library (Your Choice)*	$10 00	18	58
89	*A $15 Library* do.	$15 00	24	85
90	*A $20 Library* do.	$20 00	31	106
91	*A $25 Library* do.	$25 00	38	125
92	*A $30 Library* do.	$30 00	44	144
93	*A $35 Library* do.	$35 00	50	162
94	*A $40 Library* do.	$40 00	56	177
95	*A $45 Library* do.	$45 00	62	192
96	*A $50 Library* do.	$50 00	68	207
97	*A $60 Library* do.	$60 00	80	237
98	*A $75 Library* do.	$75 00	100	288
99	*A $100 Library* do. (At cost paid through, by Mail or Express.)	100 00	125	360
100	*A Choice of Good Books. (See Terms below.)*		....	....

☞ *Every Premium article is* **new** *and of the very* **best** *manufacture. No charge is made for packing or boxing any article in our Premium List. The Premiums,* **Nos. 8** *to* **11, 21** *to* **24, 27, 28, 29, 47, 48, 63, 64,** *and* **66** *to* **100** *inclusive, will each be delivered FREE of all charges, by mail or express (at the Post-office or express office nearest recipient), to any place in the United States or*

Territories.—The other articles cost the recipient only the freight after leaving the manufactory of each, by any conveyance that may be specified.

Descriptions of Premiums.

(*For Premiums, and number of Subscribers, see Table.*)

Nos. 1, 2, 3, 4, 5, 6.—American Table Cutlery.—We are glad to be able to offer really good articles of American manufacture, such as are competing successfully with the best foreign goods. **Messrs. Patterson Bros., 27 Park Row,** who supply us with these articles, are also importers of English goods. They recommend these Knives, manufactured by the **Meriden Cutlery Co.,** as equal to any Cutlery in the market, and their recommendation is a guaranty, wherever they are known. We offer four kinds of Knives, and three sizes of each kind. No. 1 have Rubber Handles, which are actually boiling water proof, so that, if they were accidentally to remain in it for several minutes, or even hours, they would not be injured. The Blades are of the best steel, and warranted. Dessert size, with Forks, sold at $14....For 23 subscribers at $1.50, or 78 at $1, we will give either the medium size or the table size, sold at $15.50. No. 2 have Ivory Handles, are selected with great care, have Steel Blades, and are beautiful goods. Dessert size, with Forks, sold at $18.50....For 31 subscribers, at $1.50, or 100 at $1, we will send the medium size, sold at $20.50....For 34 at $1.50, or 112 at $1, we will send the Table size, sold at $22.50. No. 3 are made of Solid Steel and are *triple-plated all over with pure silver*, which will wear for a long time, while the Knife is actually indestructible by ordinary use. Dessert size with Forks, sold at $22....For 37 subscribers at $1.50, or 118 at $1, we will give the medium size, sold at $24.50....For 38 at $1.50, or 120 at $1, we will send the Table size, sold at $25. No. 4 have Steel Blades, *triple-plated with silver*, and larger Ivory Handles, and are really splendid goods. Dessert size with Forks, sold at $25.50....For 43 subscribers at $1.50, or 128 at $1, we will give the medium size, sold at $28....For 45 subscribers at $1.50, or 143 at $1, we will give the Table size, sold at $30.50. The Forks, which accompany these Premiums, Nos. 1, 2, 3, are made of genuine Albata, and warranted *double-plated with coin-silver*. The Forks with No. 4 are warranted *Triple-plated with coin-silver*. These Forks are also furnished to us by Messrs. Patterson Bros....The Carving-Knife and Fork, and the Fluted Steel are made by **The Meriden Cutlery Co.,** with the best Ivory, balanced Handles.

No. 7.—French Cook's Knife, Fork, and Steel.—This is a long (10 in.) thin Knife, with Pat. Rubber Handle, made of the best steel, and for use rather than ornament; and it is really pleasing to see how easily it slips through a joint of beef. The fork and steel are made to match. It would save many wry faces, and perhaps hard words, were it in general use. Made by **The Meriden Cutlery Co.**

Nos. 8, 9, 10, 11—Pocket Knives.—HERE'S FOR THE **Boys** AND **Girls**!—These Premiums are among the most pleasing and useful that we have ever offered. Every boy, and girl, too, wants a pocket knife. We give them an opportunity to obtain a most valuable one for merely a little effort. These knives are made by **Messrs. Smith & Clark, Bronxville, N. Y.,** whose work is equal to any done in this country or Europe. No. 8 is a neat, substantial Knife, with three blades and buck-horn handle. No. 9 is a still finer article, with four blades and buck-horn handle. No. 10 is an elegant Knife, with four blades and shell handle. No. 11 is a Lady's Pocket Knife, a beautiful article, with four blades and shell handle.

No. 12.—A Tea Set.—This premium has given the greatest satisfaction, for the last four years. There are six pieces, viz.: A *Coffee-Pot*, two *Teapots*, a *Creamer*, *Sugar*, and *Slop Bowl*—all of beautiful, uniform pattern, new style, with raised and embossed figure work. They are not the common silver-*washed* articles, but the best triple plate, the foundation being white metal, so as not to show, even when the heavy silver coating may chance to be worn off in any spot by long, hard usage.—These sets are made by the **Lucius Hart Manufacturing Co., of Nos. 4 and 6 Burling Slip, New York City,** and are warranted by them to be of the best triple plate; and each piece bears their stamp. Mr. Hart, "the veteran Sunday-school man," has been in the same place and business for nearly a quarter of a century. We have known him and his work for many years, and take pleasure in commending and guaranteeing its value to be as represented. The amount of silver upon plated ware depends wholly upon the will and integrity of the manufacturer. We could give nearly as good-*looking* plated ware for less than half the money.

No. 13.—Casters and Fruit or Cake Basket Combined.—This is a new pattern, both novel and beautiful. It can be used as large, showy Casters, with six cut-glass bottles, or be instantly changed into complete Casters, with Call-Bell, and a separate Cake or Fruit Basket, with a colored glass dish inside. Every one receiving it will be delighted. It is from the same makers as No. 12, of same metal, plating, etc.

No. 14.—Cake Basket.—A new pattern, canoe shaped, nicely chased and very taking. It is from the same makers and of equally good quality as the two preceding premiums; is a *beautiful* table ornament.

No. 15.—Revolving Butter Cooler.—This is a really good and useful article. It is so arranged that a very little ice in the holder under the plate will keep butter cool and fresh for a long time on the table, even in the hottest weather. The cover revolves underneath the plate for use, and over for protection. The whole is in four pieces, which can all be taken apart for washing. From same house as No. 12.

No. 16.—Ice or Water Pitcher.—A large and ornamental article. It is of the same metal, plating, etc., and by the same makers as No. 12. For 35 subscribers at $1.50 each, we will include a round **Salver** of pattern to correspond (value $6); or, for 47 subscribers, a large 16-inch oval Salver (value $14), large enough for two goblets with the Pitcher; and for 53 subscribers, the Pitcher, large Salver, and a pair of beautiful Goblets, silver-plated without, and gilded within (value $38). This complete set is exceedingly desirable, though the Pitcher alone, or that and the smaller Tray, or Salver, will answer a good purpose, both for use and ornament.

No. 17.—One Dozen Teaspoons.—No. 18.—One Dozen Table-Spoons.—These are "figured tips," Olive-leaf Pattern, all of the same metal, plating, etc., and from the same makers as No. 12. They are far *cheaper* than any thing we have found at half the price, and well worth working for.

No. 19.—One Dozen Table-Forks.—The same description and remarks apply to these as to No. 18. We select as premiums only such articles as we can warrant in quality and price. All these articles come from the **Lucius Hart Manufacturing Co.**

No. 20.—Child's Cup.—A beautiful gift for the little *one-year-old*. It is made by the **Lucius Hart Manufacturing Co.** Triple-plated on the outside and gilded on the inside. It never breaks, and will last for many years—indeed, be a life keep-sake.

Nos. 21, 22, 23.—Gold Pens: *with ever-pointed Pencils, in extension, coin-silver cases.* — Premium No. 21 contains the best No. 4 Gold Pen; and No. 22 the best No. 6 Gold Pen, which is the same style, but larger. No. 23 contains No. 7 Gold Pen, in Gold-tipped Ebony Holder. Each pen will be sent in a neat leather case by mail, post-paid. These pens are made by **Geo. F. Hawkes, No. 64 Nassau St.,** and have obtained a wide and good reputation. We have known the maker and his goods for many years, and can recommend them.

No. 24.—Ladies' Fine Gold Pen, in Rubber Case, Gold Mounted, with Screw Extension, and Gold Ever-pointed Pencil. A beautiful present for a lady teacher or friend. Same makers as above.

No. 25.—Lozo Pendulum Board.—A very pleasing article for Boys and Girls (and we have seen not a few "grown up" folks playing with it). It is a neat Walnut Table Case, with rings, balls, hooks, etc., etc. Seven different games can be played on this board. It is easily adjusted upon a table, chairs, piazza, etc., and readily closed and set away when not in use. Pictures and descriptions of it can be obtained by addressing **"Novelty Game Company, No. 701 Broadway, New York."** As it requires only 18 subscribers at $1.50 each, or 58 at $1 each, to get this $10 Prize, a great many of our young readers can quickly get up a club, and *secure* a Holiday present for themselves.

No. 26.—Amusette.—We believe in *home* entertainment for both young and old people. Our observation is, that the increase of entertaining home games is already doing much to keep not only the boys but their fathers away from drinking and gambling rooms, and other places of evening resort not conducive to good morals. Premium No. 25 is specially adapted to children. This one, the "Amusette," as it is called, will afford interest to the older as well as the younger members of the family, male and female. It only needs a smooth table of any kind covered with a cloth. The play with the balls will develop much of ingenuity and skill, and give a capital study of the laws of motion, force, etc. The price has been reduced from $10 to $6, and our premium will place it in the power of very many to secure this additional source of home amusements. The Amusette is supplied by **E. J. Horsman, 100 William Street, N. Y.,** who will send any desired circulars giving information. It packs in small space and can be safely sent anywhere by express at small cost.

No. 27.—Garden Seeds.—A valuable selection of **40** varieties of the best seeds for a family garden, each parcel large enough for a garden of ordinary size. This premium and the next two are put up for us by **Messrs. B. K. Bliss & Sons,** Seed & Horticultural Warehouse, **23 Park Place** and **20 Murray St.,** whose seed establishment is well known as one of the best in the country. This premium will be of great value and convenience to many, as *we send the seeds post-paid.*

No. 28.—Flower Seeds.—Like No. 27 this is a valuable premium. It consists of **100** different kinds of beautiful flower seeds, all in separate papers, and includes the finer common varieties, and many of the newer and rarer kinds that are costly. *Sent post-paid.*

No. 29.—Very Choice Garden Seeds and Flower Bulbs.—We have taken special pains to have prepared by **Messrs. B. K. Bliss & Sons** a list of seeds and bulbs of the *very choicest kinds*, and the most useful varieties. Though some are rare (and costly), all have been tested and found excellent. Here is an opportunity to obtain a valuable assortment of seeds, as this premium allows the selection from the list below of any that may be desired, to the amount of **two dollars.** If more is wanted, it of course is only needful to secure two or more of the premiums, and select seeds accordingly. *All delivered free:* 1 Pkt. Early Wyman Cabbage, 50.; ½ oz. Marblehead Mammoth, do., 50c.; ½ oz. Improved American Savoy, do., 25c.; ¼ oz. Improved Brunswick, do., 25c.; ¼ oz. Premium Flat Dutch, do., 25c.; ½ oz. Improved Red Dutch, do., for pickling, 25c.; ½ lb. Bliss' Improved Long Orange Carrot, 50c.; 1 pkt. Perpetual Spinach Beet, 25c.; 1 pkt. Boston Market Celery, 25c.; 2 oz. Dewing's Improved Early Turnip Beet, 25c.; 1 pint McLean's Little Gem Peas, 50c.; 1 pkt. New Black Pekin Egg-Plant, 25c.; 1 pint Carter's First Crop Peas, 50c.; 1 pint Crosby's Extra Early Sugar Corn, 50c.; 1 pkt. (10 seeds) General Grant Cucumber, 25c.; 1 oz. Boston Market Tomato, 50c.; 1 pkt. Bayard Taylor's Watermelon, 25c.; 1 pkt. Conover's Colossal Asparagus, 25c.; 1 pint New Dwarf Wax Beans, 50c.; 1 pkt. New Egyptian Blood Turnip Beet, 25c.; 1 pkt. Early White Erfurt Cauliflower, 25c.; 1 pkt. Early Simpson Lettuce, 25c.; 1 pkt. New Garnishing Kale, 25c.; 1 pkt. Latakia Tobacco, 25c.; 2 oz. Conn. Seed Leaf Tobacco, 50c.; 1 pkt. Early Paris Cauliflower, 25c.; 1 oz. Finest Cucumber Seed, for pickling, 25c.; 1 pkt. Early Rose Potato Seed (from balls), 25c.; 2 oz. Genuine Hubbard Squash, 50c.; 2 oz. True Boston Marrow, do., 50c.; 2 oz. Turban, do., 50c.; 1 Lilium auratum, or New Gold-banded Lily, from Japan, $1.00; 1 Lilium lancifolium rubrum, Japan Lily, red, 50c.; 1 Lilium lancifolium album, Japan Lily, white, 50c.; 1 doz. Gladioluses, fine mixed varieties, $2.00; 1 doz. Mexican Tiger Flowers, $1.25; 1 doz. Tuberoses, Double Italian, best, $2.00; 1 doz. Hyacinths, double and single in three colors, red, blue, and white (for fall planting) $2.00; 4 doz. Tulips, double and single, early and late (for fall planting) $2.00; 100 Crocuses, fine varieties (for fall) $1.00.

No. 30.—Nursery Stock, Plants, etc.—This premium can be selected *in anything desired*, from the catalogues of **Messrs. Parsons & Co.,** Flushing, New York, or of **Mr. F. K. Phœnix,** of Bloomington, Illinois. Both are well-known, and very reliable parties, having extensive Nurseries, Greenhouses, Ornamental Trees and Plants, Grape-Vines, Shrubs, etc., etc. Send a stamp direct to either of them, for their regular catalogues. Select $20 worth (or more in proportion, if more names are sent us), and we will send to the canvasser an Order for the amount on either party named above, to be forwarded in fall or spring, as desired.

No. 31.—Set of Field Croquet.—The game of Croquet is so pleasing, and has become so popular, that we believe many will be glad to avail themselves of the opportunity of obtaining this new Premium upon terms as easy as we propose. These sets are beautiful, and from one of the best makers in the country.

Nos. 32, 33, 34.—Sewing Machines. "A good Sewing Machine lightens the labor and promotes the health and happiness of those at home." We offer a choice of three of the best of the leading machines, all of which have been thoroughly tested in our own families, and give entire satisfaction. While all are valuable, each has some excellence peculiar to itself. The **Grover & Baker** Machine is remarkable for the *elasticity of its stitch*, which is at the same time very firm and durable. The structure of the seam is such that, though it be cut or broken at intervals of only a few stitches, it will neither open, run, nor ravel. It sews directly from two spools, without rewinding.....The **Florence** Machine makes different stitches, each being alike on both sides of the fabric. One of its special advantages is that it has *the reversible feed motion*, which enables the operator, by simply turning a thumb-screw, to have the work run either to the right or left, to stay any part of the seam, or fasten the ends of seams without turning the fabric. The **Willcox & Gibbs** Machine excels in the exceeding *simplicity of its construction*. Very little instruction and ingenuity are required to understand the few parts of

which it is composed, and their use; and there is no excuse for getting it out of order, until the parts are fairly worn out. One of its strongest recommendations is the *ease with which it is worked*, taxing the strength of the operator less than other machines. All these machines have constantly increasing sales, showing the public estimate of their value. Either of them will prove a great treasure in any household; worth more than $500. The $500, at 7 per cent interest, would yield, less taxes, about $32. Most families require at least four months of steady hand-sewing a year, costing, if all hired, not less than $24 a month, board included, or $96 a year. With a Sewing Machine, a woman can sew more in one month than in four months by hand. Here is a clear saving of $72. But far above this—the everlasting "Stitch, stitch, stitch," the bending over the work, and the loss of sleep, have brought tens of thousands to early graves. We say to *every* man, get your wife a Sewing Machine, even if you have to sell a favorite horse or an acre or two of land—get the Sewing Machine any way. If you can get one through our premium list—well; but get the machine. —No charge for boxing the machines. They go safely as freight. Send for circulars, giving full instructions, to **Grover & Baker Mf'g Co.,** 495 Broadway, N. Y. **Florence Sewing M'ne Co.,** 505 Broadway, N. Y. **Willcox & Gibbs Mf'g Co.,** 508 Broadway, N. Y.

No. 35.—Washing Machines.—For a long time we have annually tried many new Washing Machines, and "Doty's Paragon," which we have now used nearly five years, is the only one the "help" will use voluntarily. Send for full Descriptive Circulars to **R. C. Browning, 32 Cortlandt St., N. Y.,** or to **Metropolitan Washing Machine Co.,** Middlefield, Conn. It goes cheaply by freight or express.

No. 36—Clothes Wringing Machine. —A very useful, time-saving, strength-saving, clothes-saving implement, that should be in *every* family. The wringing of clothes by hand is hard upon the hands, arms, and chest, and the twisting stretches and breaks the fibres with lever power. With the Wringing Machine, the garments are passed rapidly between elastic rollers, which press the water out better than hand wringing, and as fast as one can pick up the articles. We have given thousands of these premiums, with almost universal satisfaction. They are made by the **Metropolitan Washing Machine Co.,** Middlefield, Ct.

Nos. 37, 38.— Melodeons.— These are excellent and desirable instruments, for the *Home Circle*, for small Churches, for Sunday-schools, for Day Schools, Academies, etc. Instrumental and Vocal Music in a school has a beneficial influence upon the pupils. We have seen the whole tone and character of a school improved by introducing a Melodeon.—Set the pupils to work and they will raise a club of subscribers for this premium. We offer the Melodeons made by Messrs. **Geo. A. Prince & Co., Buffalo, N. Y.,** for we *know* them to be good. A large one in our own Sunday-school room has been in use for *eleven* years, and is to-day just as good as when first purchased, though used from time to time by a large number of persons.——Several clergymen have obtained this premium for themselves, their Churches, or Sunday-school rooms. The clubs of subscribers were quickly raised among the members of their parishes.—— Many others can get a Melodeon for their *home* use. Send a postage stamp to the makers and get their illustrated descriptive circular. These Melodeons will be shipped direct from the manufactory at Buffalo. They can go safely by freight or by express. If an Organ should be wanted instead of a Melodeon, we can supply it for an increased number of subscribers in proportion to the value. We have given these instruments for several years, and we believe they have invariably been greatly esteemed.

No. 39.—Steinway Piano.—SEVEN OCTAVE, ROSEWOOD CASE, SOLID ROSEWOOD DESK, LARGE FRONT, ROUND CORNERS; OVERSTRUNG BASE, FULL IRON FRAME, PATENT AGRAFFE TREBLE, CARVED LEGS, AND CARVED LYRE.—This is one of the most elegant Premiums ever offered; regular and only price **$625.** That this magnificent instrument comes from the celebrated establishment of **Messrs. Steinway & Sons Nos. 109 & 111 East 14th St.,** is enough to say; but it is due to these enterprising manufacturers to state that, while their pianos have repeatedly received the FIRST PREMIUMS, by the award of the most competent judges the world can produce, at the Universal Exposition, in Paris, they received the FIRST GRAND GOLD MEDAL for American Pianos in all three styles exhibited, viz.: Grand, Square, and Upright. The following official certificate was signed by the President and the five members of the International Jury: "Paris, July 20th, 1867. I certify that the First Gold Medal for American Pianos has been unanimously awarded to Messrs. Steinway by the Jury of the International Exhibition. First on the List in Class X." The Society of Fine Arts in Paris unanimously awarded Steinway & Sons their *only* annual Testimonial Medal for 1867. The President of the Musical Department of that Society reports: "The pianos of Messrs. Steinway appear to me, as well as to all the artists who have tried them, superior to all that have been made to this day in the entire world." The best judges in America say the same. We also speak from personal knowledge, as each of our partners has one at home, and desires no better. This splendid premium may be secured by many persons. Only 520 subscribers are required to do it. Several have obtained this premium during the last year. It will pay for even a year's labor. Classes of young ladies at school might unite in canvassing, and obtain a present for a Teacher, or a Piano for their school-room. We shall be glad to give this premium to a large number. Send to **Messrs. Steinway & Sons** for a *free* circular describing it.

No. 40.—A Good Watch.—The Watches made by the **American Watch Co., Waltham, Mass.,** have peculiarities of excellence which place them above all foreign rivalry. The substitution of machinery for hand labor has been followed not only by greater simplicity, but by a precision in detail, and accuracy and uniformity in their time-keeping qualities, which by the old method of manufacture are unattainable. A smoothness and certainty of movement are secured which proceed from the perfect adaptation of every piece to its place. The extent of the Waltham establishment, the combination of skilled labor, with machinery perfect and ample, enables them to offer watches at lower rates than any other manufacturers. Their annual manufacture is said to be double that of all other makers in this country combined, and much larger than the entire manufacture of England. The mechanical improvements and valuable inventions of the last fifteen years, whether home or foreign in their origin, have been brought to their aid, and the presence of over 400,000 Waltham Watches in the pockets of the people is the best proof of the public approval. We offer a Silver watch, jeweled, with chronometer balance, warranted by this Company as made of the best materials in the best manner, and in pure coin-silver "hunting" case; weight 3 oz. This watch we offer as one of our Premiums, with the fullest confidence. Upon the movement of each of these watches will be engraved, "AMERICAN AGRICULTURIST. MADE BY THE AMERICAN WATCH CO., WALTHAM, MASS."

No. 41.—Ladies' Fine Gold Watch. —This elegant Premium will delight our friends who may receive it. Our arrangement with the **American Watch Co.** (see No. 40 above) includes these beautiful gold watches. They are full jewelled, in 18-carat "hunting" cases, warranted to be made of the best materials, and possessing every requisite for a reliable Time Keeper. Upon the movement of each Premium Watch will be engraved "AM. AGRICULTURIST. MADE BY THE AM. WATCH CO., WALTHAM, MASS."

No. 42.—Frank Wesson's Breech-loading Rifle.—This is a capital little rifle, weighing 6½ lbs., 40 inches long including the breech, and an accurate and powerful shooter, to which our attention was recently called by our "great gun" friends, Messrs. Cooper, Harris & Hodgkins, of 177 Broadway. At our first trial, of ten shots, eight were put within an inch of the center of a target 60 yards off, and the other two were within 1½ inches. We stopped then because the bull's-eye was destroyed, and tried twelve shots at 100 yards. Seven of these were within 1 inch of center, and the other five within 2½ inches. The above 22 shots were fired as fast as the marker could plug the holes and get out of the way. (Plain open sights were used. For very accurate shooting with any gun, the globe sight is necessary.) A few trials proved the gun to have great penetration and accuracy at the distance of 400 to 800 yards. With the ready fixed ammunition, (copper cartridges, containing powder, ball, and percussion), the loading is exceedingly simple and rapid. Pulling one trigger throws up the barrel, and ejects the used copper shell, a new one is inserted in an instant, the barrel is pushed down, the cock set—all done in a few seconds—and you are ready to fire again. One has only to carry the cartridges in his pocket, the light rifle, and his game bag.—The usual length of barrel is 24 inches. Longer barrels can be had at an expense of $2 an inch if wanted by any one.—Send for descriptive Circulars, etc., to the Agent, **M. W. Robinson, 79 Chambers St., New York.** Our premium will be the 24-inch steel-barrel rifle, including 100 cartridges. The recipient will please choose whether the caliber be 32-100, or 38-100, or 44-100. The last named is suitable for heavy game, the first for smaller, and the 38-100 for a medium. The first is hardly large enough for bears, buffalo, or deer, but is ample for anything smaller.

No. 43.—Breech-loading Pocket Rifle.—This remarkable little fire-arm weighs only eleven ounces, yet shoots with great accuracy and power from 30 to 100 yards, or more, and can be loaded and fired five times a minute. It can be carried in a side pocket, and is accompanied by an extension breech, so that it may be used either as a pistol or rifle. It is put up in a neat mahogany case, with 250 rounds of ammunition. The manufacturers are **Messrs. J. Stevens & Co., Chicopee Falls, Mass.,** and the rifles are sold at retail by MESSRS. COOPER, HARRIS & HODGKINS, No. 177 BROADWAY. This Premium gave great satisfaction last season. ☞ Without the mahogany case, we will give the weapon, all complete, with 100 cartridges, packed in a pasteboard box, on receipt of 18 subscribers, at $1.50 each. For a full description see *American Agriculturist* for Jan. 1869, page 32.

No. 44.—Maynard's Combination Gun—A Breech-loading Rifle and Shot-Gun, or TWO GUNS IN ONE!—This is a capital gun for those who want a weapon to use either as a rifle or shot-gun. Either barrel can be slipped into the same stock in a moment. The ammunition is peculiar. The strong brass cartridges are loaded at leisure, costing nothing but for the powder and lead, and may be used over and over again for any number of times. One can carry cartridges in his pocket, loaded with different sizes of shot, and slip in and fire any size wanted for large or small game. At our first trial with the rifle barrel, we twice over put 12 successive balls within an inch of the center of the mark, at the distance of 60 yards, and within 1½ inches of the center at the distance of 100 yards, and did nearly as well at still greater distances. We want nothing better for accuracy and penetration. The shot barrel carried admirably. Our Premium consists of a *complete* outfit, including an extra fine Stock, a 26-inch rifle-barrel, 35-100 bore, with elevating Peep Sight, Cartridge Retractor, Double Bullet Mold and Neck Cutter, Loader, Rod, Brush, Cone Wrench, Extra Cone, Rag-holder, and 50 Cartridge-cases, Platina Bushing, Front-shaded Bead Sight; *Shot Barrel*, with 50 Shot Cartridge-cases, Rod and Brush, Wad-cutter, and Shot-loader, Powder-Flask, and extra Charger. For further particulars send for a Circular to the **Massachusetts Arms Company, Chicopee Falls, Mass.**

No. 45. — Double Barrel Gun; OR FOWLING PIECE.—These guns are the genuine London "Twist" barrel, Patent Breech, Bar Lock, ebony ramrod, and in all respects desirable. Their calibre and length of barrel vary, and may be ordered to suit the kind of shooting to be done. They are furnished for this premium by **Messrs. Cooper, Harris & Hodgkins, 177 Broadway,** well known as one of the most reliable and best houses in their line of business, and they highly recommend this particular gun, and guarantee it in every respect. It is from one of the oldest and most favorably known English manufacturers. The price is not put on in fancy carving and plating for show, but in the gun itself. This premium includes Gun, Powder-Flask, Shot-Pouch, and Wad-Cutter.

No. 46.—Chest of Good Tools.—We continue through the special favor of **Messrs. Patterson Brothers, of 27 Park Row,** the offer of chests of the *very first quality of tools*, of kinds and prices named below. Similar tools could be purchased for half the money, but these are all A. No. 1, for practical use, and worth a dozen common articles. For this we have the guarantee of Messrs. Patterson, which is amply sufficient for us, and for all who know them. Any of these tools may be ordered *of them*. We make up only a single premium, which contains a full assortment for all common purposes. The tools are of regular size, and but few additions would be required for a Journeyman Carpenter. The assortment we offer is as follows: 1 Tool Chest, $8; 1 Jack Plane, $1.75; 1 Smooth Plane, $1.50; 1 Fore Plane, $2.25; 1 Handsaw, 22 in., $1.75; 1 Compass Saw, 10 in., 50c.; Compass, 6 in., 37c.; 1 Adze-eye Hammer, No. 4, $1.25; 1 Hatchet, No. 2, 90c.; 1 Draw Knife, 7 in., $1.12; 1 Try Square, 6 in., 70c.; 1 Bevel, 8 in., 75c.; 1 Chalk Line and Spool, 30c.; 1 Mallet, 30c.; 1 Pair of Pliers (steel), 5 in., 60c.; 1 Pair of Calipers, 4 in., 36c.; 1 Brace, No. 2, $2.25; 1 Auger bit, ea. ¼ in. 30c.; ½ in. 32c.; ¾ in. 45c.; 1 in. 60c.; 1 Center bit, ea. ½ in. 21c.; ¾ in., 23c.; 1 in., 25c.; 1¼ in., 35c.; 1½ in., 40c.; 6 Gimlet bits, assorted, 90c.; 3 Gimlet bits, assorted, 33c.; 1 Screw-driver bit, 25c.; 1 Flat Countersink, 25c.; Rose, do., 25c.; Snail, do., 25c.; 1 Octagon Reamer, 30c.; 1 Taper bit, 30c.; 1 Screw-driver in Handle, ea. 3 in., 30c.; 6 in., 50c.; 1 Gouge in Handle, ea., ½ in., 50c.; 1 in., 70c.; 1 Chisel in Handle, ea., ¼ in., 30c.; ½ in., 35c.; ¾ in., 40c.. 1 in., 50c.; 1¼ in., 60c.; 1 Framing Chisel, ea., ¾ in., $1; 1 in., $1.10; 1¼ in., $1.20; 1 Auger, ea., ¾ in., 70c.; 1 in., 80c.; 1½ in., 90c.; 1 Set Brad-awls in Handles, $1.35; 1 Rule, 2 feet, 25c.; 1 Saw File, ea., 4 in., 14c.; 5 in., 17c.; 1 Flat File, 8 in., 30c.; 1 Wood Rasp, 50c.; 1 Soldering Copper, 60c.; Solder, Nails, etc., $1.25;=**$45.00.**

Nos. 47, 48.—Mathematical Instruments for Draughting, Drawing, etc.— Very convenient, not only for Architects and Mechanics, but for farmers and others, and for Boys and Girls. These are neatly fitted in beautiful Rosewood Cases, having dividers with flexible joints, and points, semi circles, pencil and penholders, rulers, etc., etc. All the pieces in No. 47 are finished in brass and steel; those in No. 48 are German-silver and steel. The pieces are the same in each, but No. 48 is of extra beauty and workmanship.

No. 49. — Charles Pratt's Astral Oil supplies a great Public Want for a Safe, Reliable, Illuminating Oil. It is manufactured by him and packed only in the Guaranty Patent Cans, expressly for FAMILY USE. It has more body, and an equal quantity will burn longer and give more light than other oils. The constant recurrence of explosions, fires, devastation and death,

resulting from the use of what is called Kerosene Oil,—but really a mixture of Benzine, Naphtha and other highly inflammable substances, the use or sale of which is an infringement of United States Law,—has induced us to place this article on our premium list as a humanitarian as well as a useful act. The Board of Health of the city of New York have examined scores of samples of Oil obtained from as many different dealers in this city, and nearly all have been found far below the government standard and entirely unfit for use. This "Astral Oil" is from the House of **Chas. Pratt, 108 Fulton St.** Mr. P., a merchant of high reputation, will keep up the article to its present standard. It has been tested and received the endorsement of the highest scientific authorities in the land. Among them are E. N. Horsford, late Rumford Prof. Harvard University, etc., and R. Ogden Doremus, Prof. Chem. in the College of the City of New York. Dr. G. Tagliabue says: "I have to pronounce the 'Astral' Oil, the safest Illuminating Oil in the market." The Guaranty Cans are made of tin, and sealed so that none of the oil can be removed without breaking the seal, thus securing safety in transportation. The can is inclosed in a strong wooden case, and may be returned for refilling. For 19 subscribers at $1.50, or 65 at $1.00, we will send a case containing 12 one gallon Guaranty Cans, which may be distributed.

Nos. 50, 51.—Mercurial Barometers.—Woodruff's Patent, made by **Chas. Wilder, Peterboro, N. H.** These are the most convenient and portable Mercurial Barometers made. (Send to Mr. Wilder for a circular.) The peculiar form of Mercury cup invented by Mr. Woodruff renders these Barometers so portable that Mr. Wilder *guarantees their safe delivery*, if not to be sent beyond the Rocky Mountains. The instruments are about 3 feet long, differing mainly in the style of case, both being supplied with *Thermometer* and *Vernier*. A Barometer is to farmers, or others on land, what it is to sailors at sea—an indicator of the weather to be looked for. *To us* this instrument is of more real value, in a business way, than the interest on several hundred dollars. *It more than pays its cost* every year!

No. 52.—Buckeye Harvester Mower.—The Buckeye Mower is so widely and favorably known that we need not describe it particularly. In 1869 this machine competed at only two large trials, one at Louisville, Ky., where it received the First Prize Grand Gold Medal, and the other at Amherst, Mass., where it received Two First Prize Grand Gold Medals. **Messrs. Adriance, Platt & Co., 165 Greenwich St., N. Y. City,** will send any one a circular, giving full description, engravings, etc. Many a farmer can secure this premium by a very few days' or odd hours' and evenings' canvassing for subscribers. A few can unite their efforts, each getting a part of the subscribers, and own the machine in common.—Ten subscribers a day for 15 days would secure it ($125.)—Many can easily raise the necessary club at Town Meetings, Fairs, Elections and other gatherings, or during evenings. The Buckeye Self-Rake Reaper has been proved to be a very valuable machine and is at least equal to any Reaper and Raker in the market. Those who secure this Mower can afterward secure the Reaper, which can be attached.

No. 53.—Patent Cylinder Plow.—We hear very good reports from those who have heretofore received this premium. It is an Ohio invention, but is manufactured by the well-known firm of **R. H. Allen & Co., 189 & 191 Water-st., New York,** to whom application may be made for descriptive circulars, etc. The kind we offer for premiums is the "Two-horse size, cutting a furrow 12 to 14 in. wide, and 5 to 8 in. deep." It is provided with a wheel and with a "skim plow," like the double "Michigan plow."....For 29 subscribers at $1.50, or 97 at $1.00, we will give the Heavy Two-horse, 14 to 16 in. wide, and 6 to 9 in. deep, $19.00....For 32 at $1.50, or 100 at $1.00, the Two to Three horse, 16 to 18 in. wide, 8 to 11 in. deep, $21.00. For 22 subscribers at $1.50 or 75 at $1.00, the One-horse, 10 to 12 in. wide and 4 to 7 in. deep, $15.00.

No. 54.—Collins & Co.'s Cast-steel Plows.—These excellent plows are made by a patented process, of cast-steel recast (not rolled), tempered and polished like a good axe. They will scour in the softest soils, and are great favorites on the prairies. The canvasser has his choice of eight plows named in the manufacturer's circular at the same price ($25), of which we particularly recommend "C, No. 3" for general use; "B, No. 12" for stubble only; and "E, No. 12" for turf only. Send for circular, giving full particulars, to **Collins & Co., 212 Water-street, New York.**

No. 55.—Comstock's New Horticultural Implements Combined.—*The Hand Cultivator and Onion Weeder* will do the work of *six men* with hoes. It pulls the weeds and thoroughly pulverizes the soil. It is as much superior to the hoe for all small drill culture as the mowers and reapers are to the scythe and cradle. The *Seed Sower* is the most perfect small seed drill we have seen. It sows Beet, Parsnip, and other difficult seeds, with the greatest regularity, and it is specially adapted to sowing Onion seed at the rate of 4, 5, or 6 pounds to the acre. It is readily attached to the Cultivator. The *Strawberry Cutter* takes off the runners and at the same time cultivates between the rows. After another year's trial of these implements on our own grounds, and the entire satisfaction they have given to all who ordered them of us as premiums, we offer them again, and recommend them as being all the inventor claims,—"the best in the world." For 19 subscribers at $1.50, or 65 at $1.00, we will give the Cultivator and Weeder and Strawberry Cutter, price, $12.00.....For 22 at $1.50, or 75 at $1.00, we will send the Cultivator and Weeder, and Seed Sower, price, $15.00....For 27 at $1.50, or 90 at $1.00, we will send *all* these implements complete, price, $18.00. Manufactured by **Comstock Brothers, East Hartford, Conn.,** who furnish descriptive circulars to all applicants. See cuts in *American Agriculturist*, page 127, 1869, and page 118, 1870.

No. 56.—The American Submerged Pump.—Every family needs a reliable pump, capable of raising water easily and rapidly from the bottom of the well, be it deep or shallow,—one that is durable, that will not get out of order, or be liable to injury from frost or gravel. When we add to these the qualities of a powerful force-pump, ability to throw water 60 or 70 feet from a hose-pipe, and a construction which renders freezing an impossibility, though it stand out of doors, we think we have a family and farm pump which we can conscientiously recommend. No. 1 will raise 20 gallons of water a minute. This is the pump offered in the list. No. 2, 30 to 35 gallons. No. 3 will raise 2 bbls. per minute from an ordinary well; and there are larger sizes. Either of these pumps will be furnished for the same number of subscribers required for other Premiums of the same price. The pumps have what is called water packing, that is, no packing at all; the pump is set in the well, and nothing but the perpendicular brake and spout appear above the platform. Further information, Circulars, and Price-Lists, may be obtained by addressing the **Bridgeport Manufacturing Co., Bridgeport, Conn.**

No. 57.—Page's Patent Pump and Sprinkler.—A Hand Watering-Pot, a Greenhouse Syringe, a light Force-Pump, and Garden-Engine. It is very simple in construction, light to carry, easy to operate, and adapted to many uses—convenient for washing windows or blinds, carriages, horses; watering plants, etc. Throws a small stream with considerable force about 40 feet. It is so arranged that the stream can be instantly changed to drops, spray, or mist. *For circulars etc., address the patentee and manufacturer*, **N. Page, Jr., Danvers, Mass.**

No. 58.—Family Scales.—These scales, combining the advantages of counter and platform scales, are peculiarly adapted to household purposes. They weigh from ½ ounce to 240 lbs. They have a scoop, or pan for weighing flour, sugar and other house stores, and a platform for heavier articles, and are just such an apparatus as is needed for in-door or out-door use, occupying less than 2 feet square. These scales are manufactured by the well-known **Fairbanks & Co., No. 252 Broadway, New York,** whose weighing apparatus has long ranked as the standard in all parts of the country. Send to them for circulars, if desired

No. 59.—Crandall's Improved Building Blocks furnish a most attractive amusement for children. Churches, Dwellings, Barns, Mills, Fences, Furniture, etc., in almost endless variety, can be built with them, and the structures remain so firm as to be carried about. For developing the ingenuity and taste of children they are unequaled. The Blocks are put up in neat boxes, accompanied by a large illustrated sheet giving various designs of buildings, etc., etc. This is one of the most successful toys ever invented. Twenty-five thousand dollars' worth were sold last year by *Orange Judd & Co., Sole Agents.*

No. 60.—Pocket Lanterns.—A very ingenious and valuable Yankee invention—a complete *Lantern*, yet it can be folded into a parcel 3 by 4 inches long, and ¾ of an inch in thickness; it contains 3 little sperm candles, matches, etc., always ready for use. Made by the **Merriam Manf'g Company** (Julius Ives & Co., Agents, No. 37 Barclay St., New York).

No. 61.—New American Cyclopædia.—We cannot commend this great work too highly. We wish it could be placed in every family in the country. Scholars at our Academies and Seminaries, and members of Library Associations, can easily unite their efforts and secure it. Young men should devote evenings and spare hours to canvassing for this magnificent and useful premium for their own use. Published by **D. Appleton & Co.,** 90 Grand Street, N. Y. ☞ The Cyclopædia *is a whole library of itself*, consisting of *sixteen* very large octavo volumes, well bound, averaging **800** large, two-column pages in each book. They treat upon over **25,000** different subjects. It is hardly possible to name any subject, any country, any person of note, in past or recent time, concerning which pretty full information may not be found in the Cyclopædia alphabetically arranged; worth a year's effort in raising subscribers.

No. 62.—The Great Dictionary.—Worcester's Large, Pictorial, Unabridged Edition, containing **1,854 three-column pages,** with a multitude of illustrative engravings. (The work is a large quarto volume.) Most of the thoroughly educated men of the country consider this as by far the best Dictionary in the English Language. It gives the spelling and pronunciation of every word in the language with full explanations, and as a source of general information stands next to the Cyclopædia. The Dictionary can be called for at our Office, or be sent by express or otherwise, to any part of the country. It should be in every family. It is published by **Brewer & Tileston, Boston.**

Nos. 63, 64.—The Eumelan Grape.—This remarkable grape is now attracting much attention, being a beautiful black grape of the first quality, and ripening some time before the Delaware. It has already been planted in many different sections of the country, from the Atlantic to west of the Mississippi, and its success has been most flattering. It has proved, generally, vigorous and hardy. The quality of the fruit is, in our judgment, as good as any variety with which we are familiar, except it be the Iona. We are convinced that this grape is worthy of general trial, and we shall take much interest in seeing its true merits developed. We have made arrangements with Messrs. Hasbrouck & Bushnell, of Iona, near Peekskill, N. Y., who have the original stock of the vines, to supply us with No. 1 and Extra Vines for Premiums. These vines will be of really No. 1 and extra quality, and will be sent by mail, postage paid, or boxed, by express, the receiver paying express charges only. Orders received too late for sending this fall will be filled as soon as it is safe in the spring.

No. 65.—Double Harpoon Horse Hay-Fork.—Any good Horse Hay-Fork is almost a necessity in these days of high wages; it is one of the real labor-saving implements of the day, and that farmer who fails to adopt it, will fail to reap the *profit* for his labor which he ought to have. Harris' Double Harpoon Fork is a most excellent one, as we know by experience and observation, and we therefore place it in our Premium List. Let any hay grower, who is too doubtful about the value of such an implement to invest money in it, gather a list of 18 subscribers this fall or winter, and get an implement free, and our word for it, he will feel well repaid when the busy hard work comes on in the hay field. Descriptive Circulars will be sent to all applicants by the **"Pennock Manufacturing Company," Kennett Square P. O., Chester Co., Pa.**

Nos. 66 to 76.—Volumes of the American Agriculturist (Unbound).—These amount to a large and valuable Library on all matters pertaining to the Farm, Garden, and Household, and contain more varied information on these subjects than can be obtained in books costing three times as much. The price of the volumes is $1.50 each, at the Office, or $1.75 if sent by mail, as they must be post-paid.—They are profusely Illustrated, the engravings used in them having alone cost at least $60,000. Those obtaining premiums for less than thirteen volumes can select any volumes desired, from XVI. to XXIX. inclusive. For ordinary use, the sets of numbers unbound will answer quite well.

Nos. 77 to 87.—Bound Volumes of the Agriculturist.—These are the same as Nos. 66 to 76 above, but are neatly *bound* in uniform style, and cost us more for binding and postage. Sent post-paid.

Nos. 88 to 99.—Good Libraries.—In these premiums, we offer a choice of **Books** for the **Farm, Garden,** and **Household.** The person entitled to any one of the premiums 88 to 99 may select any books desired from the list of our books published monthly in the *American Agriculturist*, to the amount of the premiums, and the books will be forwarded, Post or Express *paid*. $25 or $50 worth of books pertaining to the farm will give the boys new ideas, set them to thinking and observing, and thus enable them to *make their heads help their hands*. Any good book will, in the end, be of far more value to a youth than to have an extra acre of land on coming to manhood. ☞ Let the Farmers of a neighborhood unite their efforts and through these premiums get an agricultural Library for general use.

No. 100.—General Book Premium.—Any one sending 25 or more names may select Books from our list to the amount of 10 cents for each subscriber sent at $1; or 30 cents for each name sent at $1.20; or 60 cents for each name at $1.50. *This offer is is only for clubs of 25 or more. The books will be sent by mail or express, prepaid through by us.*

One Hundred Premiums.

(See Pages 392, 393, 394, 395.)

BOOKS FOR FARMERS and OTHERS.

[Published and for sale by Orange Judd & Co., 245 Broadway, New York. Any of these books will be forwarded by mail, *post-paid*, on receipt of price.]

Allen's (L. F.) American Cattle	$ 2 50
Allen's (L. F.) Rural Architecture	1 50
Allen's (R. L.) American Farm Book	1 50
Allen's (R. L. and L. F.) New American Farm Book	2 50
Allen's (R. L.) Diseases of Domestic Animals	1 00
Am. Agricultural Annual, '67, 68, '69, & '70, ea., pa., 50c.; clo.	75
Am. Horticultural Annual '67, '68, '69, & '70, ea., pa., 50c.; clo.	75
American Bird Fancier	30
American Rose Culturist	30
American Weeds and Useful Plants	1 75
Bement's Rabbit Fancier	30
Bommer's Method of Making Manures	25
Boussingault's Rural Ecooomy	1 60
Breck's New Book of Flowers	1 75
Buist's Flower Garden Directory	1 50
Buist's Family Kitchen Gardener	1 00
Caldwell's Agricultural Chemical Analysis	2 00
Chorlton's Grape Grower's Guide	75
Cobbett's American Gardener	75
Cole's (S. W.) American Fruit Book	75
Cole's Veterinarian	75
Copeland's Country Life	5 00
Dadd's (Geo. H.) Modern Horse Doctor	1 50
Dadd's American Cattle Doctor	1 50
Dana's Muck Manual	1 25
Darwin's Variation of Animals and Plants...2 Volumes	6 00
De Vue's Market Assistant	2 50
Downing's Fruits & Fruit Trees. New Ed. Oct., 1122 pp.	7 50
Downing's Landscape Gardening	6 50
Eastwood on Cranberry	75
Elliott's Western Fruit Grower's Guide	1 50
Field's (Thomas W.) Pear Culture	1 25
Flax Culture	50
French's Farm Drainage	1 50
Fuller's Grape Culturist	1 50
Fuller's Small Fruit Culturist	1 50
Fuller's Strawberry Culturist	20
Fulton's Peach Culture	1 50
Gregory on Squashes ..... paper..	30
Guenon on Milch Cows	70
Harris' Insects Injurious to Vegetation, clo., $1.00: extra	6 50
Harris on the Pig	1 50
Henderson's Gardening for Profit	1 50
Henderson's Practical Floriculture	1 50
Herbert's Hints to Horsekeepers	1 75
Hoopes' Book of Evergreens	3 00
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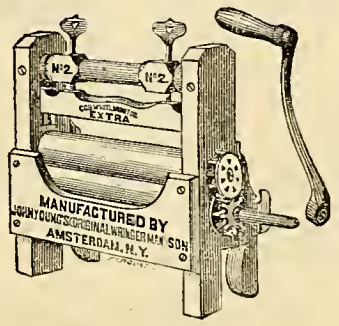

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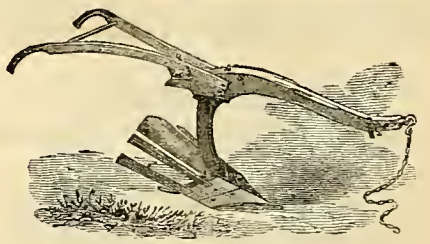

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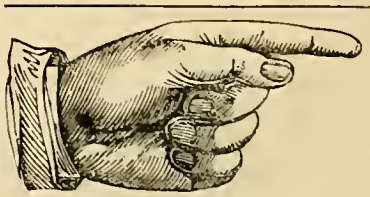

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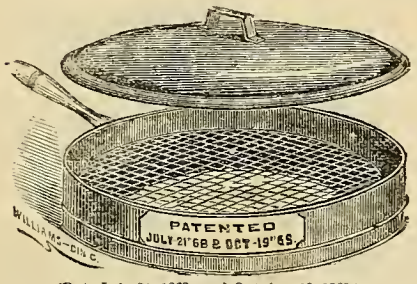

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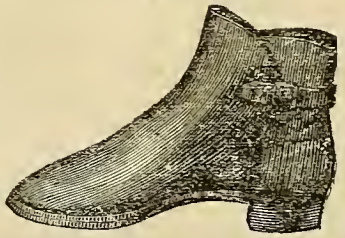

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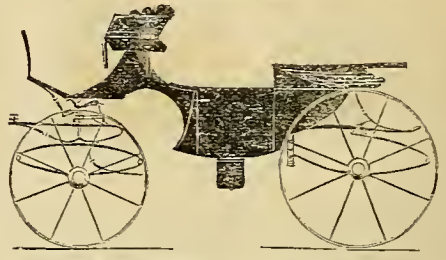

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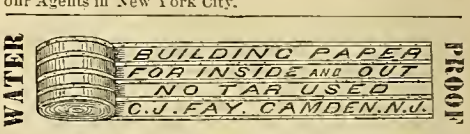

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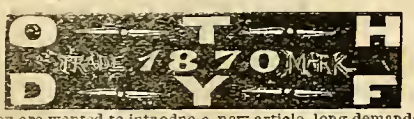

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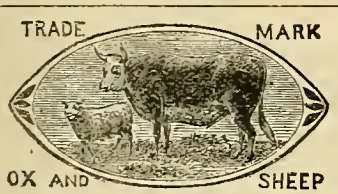

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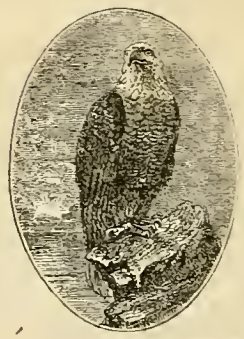

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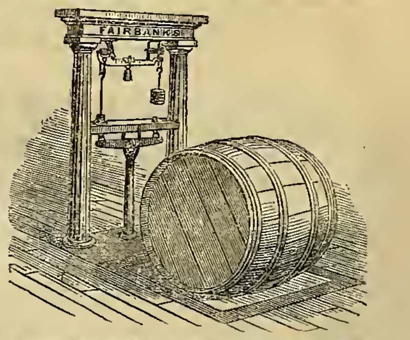

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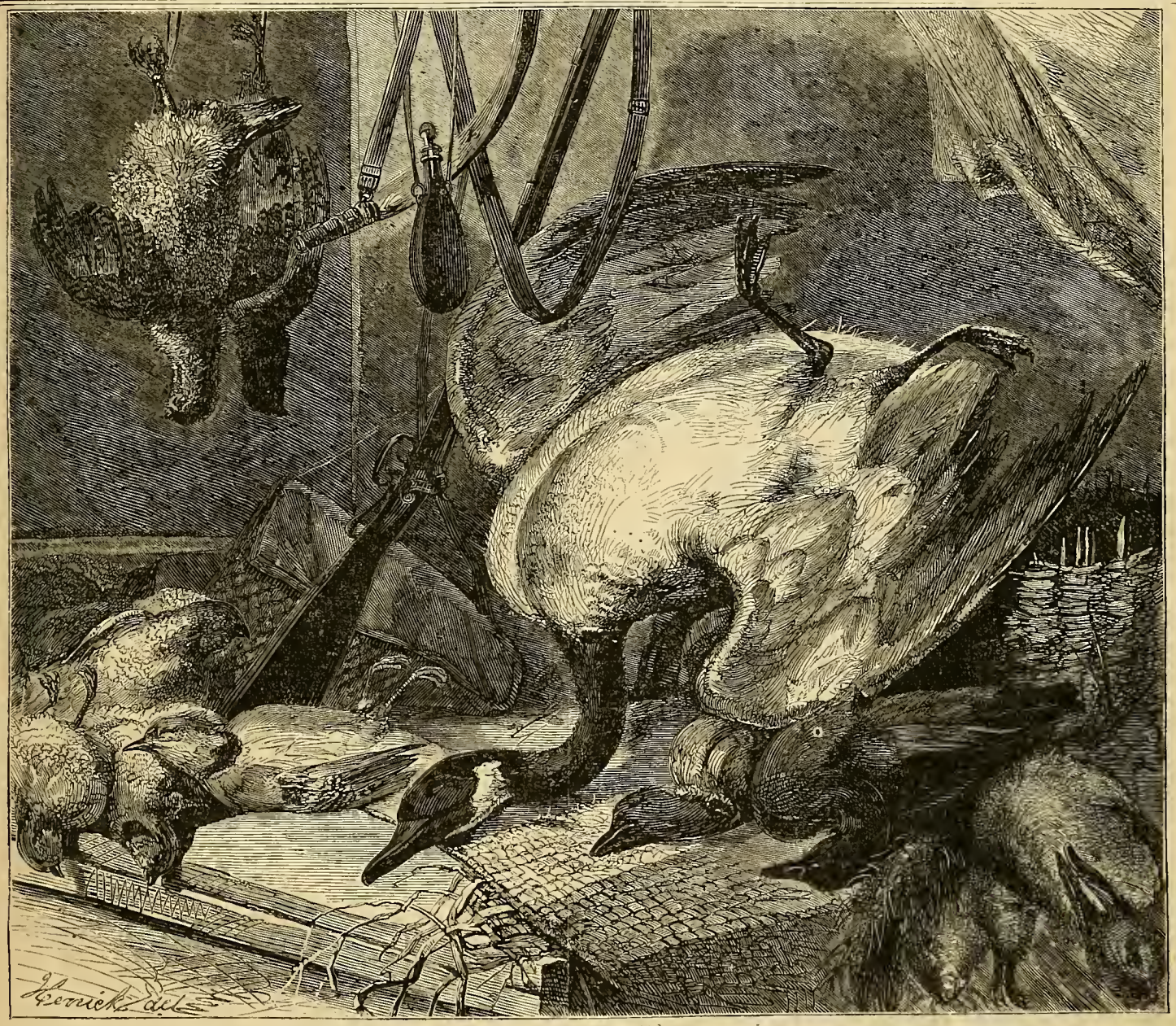

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DEAD GAME OF THE SEASON.—DRAWN BY H. W. HERRICK.—*Engraved for the American Agriculturist.*

With the advance of the season our marshes and copses, quiet woods and plains, from which the husbandman has disappeared for the time, are more or less filled with gleaners of the harvest of nuts and seeds, which wild Nature provides for her children, or of the residue of the imperfectly garnered products of cultivated fields. Among these busy denizens of the free country and the green wood, now sere and russet, are birds and beasts, many of which are excellent as food, and all of which would multiply to their own destruction were they not held in check by birds and beasts of prey, which, in the providential ordering of nature, have a definite work to do in keeping down this excess of life. The quick shot that stops the flight and the joyous life, really cheats the fox or the hawk of his supper, while it adds not a little to the sum total of human happiness.

Great numbers of our autumn and winter game-birds are migratory and do not breed with us. The wild goose, next to the turkey and swan, is our finest game-bird. It rarely breeds within the bounds of the United States. The same is true of all the ducks but one, but none of the gallinaceous birds are properly migratory. Hence these are protected by stringent laws, which should be enforced and sustained by public opinion, or the sport and the benefit of wild game will be lost forever. After the breeding season has passed and the young have grown, in a country like ours, game of all kinds must take their chances. Though man should be their best friend during the summer, and until, by statute and usage, "the law is off," he will be found their worst enemy when the reduction of their numbers contributes so greatly to his enjoyment as a matter of sport, as well as to the gratification of his palate, to say nothing of the highest pleasure of the true sportsman, that of sending gifts of game to his friends, which are sure to be highly valued by them.

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A "Bakers Dozen."

Thirteen for Twelve.

Every **New** *Subscriber to American Agriculturist and Hearth and Home for* **1871,** *whose subscription comes to hand during November, will be presented with the paper the rest of this year* **without charge,** *if the name be marked* **new** *when sent in.*

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Calendar for November.

Day of Month.	Day of Week.	Boston, N. England, N. York State, Michigan, Wisconsin, Iowa, and Oregon. Sun rises.	Sun sets.	Mon sets.	N. Y. City, Ct., Philadelphia, New Jersey, Penn., Ohio, Indiana, and Illinois. Sun rises.	Sun sets.	Mon sets.	Washington, Maryland, Virginia, Kentucky, Missouri, and California. Sun rises.	Sun sets.	Mon sets.
		H.M	H.M	H. M.	H.M	H.M	H. M.	H.M	H.M	H. M.
1	T	6 33	4 54	morn	6 30	4 57	morn	6 27	5 0	morn
2	W	6 34	4 53	0 48	6 31	4 56	0 51	6 28	4 59	0 54
3	T	6 36	4 51	1 51	6 32	4 54	1 53	6 29	4 58	1 55
4	F	6 37	4 50	3 50	6 34	4 53	2 53	6 31	4 57	2 53
5	S	6 38	4 49	3 50	6 35	4 52	3 50	6 32	4 56	3 51
6	S	6 39	4 48	4 50	6 36	4 51	4 49	6 33	4 55	4 48
7	M	6 41	4 47	5 43	6 37	4 50	5 46	6 34	4 54	5 44
8	T	6 42	4 45	rises	6 38	4 49	rises	6 35	4 53	rises
9	W	6 43	4 44	5 49	6 40	4 48	5 53	6 36	4 52	5 57
10	T	6 44	4 43	6 27	6 41	4 47	6 32	6 37	4 51	6 36
11	F	6 46	4 42	7 9	6 42	4 46	7 14	6 38	4 50	7 19
12	S	6 47	4 41	7 57	6 43	4 45	8 2	6 39	4 49	8 8
13	S	6 48	4 40	8 51	6 44	4 44	8 56	6 40	4 48	9 2
14	M	6 49	4 39	9 50	6 46	4 43	9 55	6 41	4 47	10 0
15	T	6 51	4 39	10 54	6 47	4 42	10 58	6 43	4 47	11 2
16	W	6 52	4 38	12 0	6 48	4 41	morn	6 44	4 46	morn
17	T	6 53	4 37	morn	6 49	4 40	0 3	6 45	4 45	0 6
18	F	6 54	4 36	1 10	6 50	4 39	1 12	6 46	4 44	1 13
19	S	6 56	4 35	2 21	6 51	4 39	2 21	6 47	4 44	2 22
20	S	6 57	4 34	3 35	6 53	4 38	3 35	6 48	4 43	3 34
21	M	6 58	4 34	4 51	6 54	4 38	4 49	6 49	4 43	4 47
22	T	6 59	4 33	6 10	6 55	4 37	6 7	6 50	4 42	6 4
23	W	7 0	4 32	sets	6 56	4 36	sets	6 51	4 42	sets
24	T	7 2	4 32	6 16	6 57	4 36	6 18	6 52	4 41	6 26
25	F	7 3	4 31	7 16	6 58	4 35	7 21	6 53	4 40	7 27
26	S	7 4	4 31	8 21	6 59	4 35	8 26	6 55	4 40	8 31
27	S	7 5	4 30	9 29	7 0	4 35	9 33	6 56	4 40	9 37
28	M	7 6	4 30	10 37	7 2	4 34	10 40	6 57	4 40	10 44
29	T	7 7	4 30	11 40	7 3	4 34	11 43	6 58	4 39	11 45
30	W	7 8	4 29	morn	7 4	4 34	morn	6 59	4 39	morn

PHASES OF THE MOON.

MOON.	D.	BOSTON. H. M.	N. YORK. H. M.	WASH'N. H. M.	CHA'STON H. M.	CHICAGO. H. M.
Full	8	2 48 m.	2 36 m.	2 24 m.	2 12 m.	1 42 m.
3d Quart.	16	4 15 m.	4 3 m.	3 51 m.	3 39 m.	3 9 m.
New Moon	22	8 37 ev.	8 25 ev.	8 13 ev.	8 1 ev.	7 31 ev.
1st Quart.	29	5 49 ev.	5 37 ev.	5 25 ev.	5 13 ev.	4 43 ev.

AMERICAN AGRICULTURIST.

NEW YORK, NOVEMBER, 1870.

How humdrum and stupid the life of the farmer would be, were it not for the change of labor and thought which each season brings. We think, sometimes, almost with a longing to enjoy them ourselves, of the bland winters of half-tropical regions, and of those changeless spring like climates of some of the high valleys in the midst of the torrid zone. Yet we are happier and better off as farmers and as men for our rigorous winters, for the necessity of making provision for ourselves and for our stock, for the pinching of the frost, for the dangers we avoid, and for the losses that will surely come from neglect and carelessness during our winters. The better we are prepared for them, the more we may enjoy and profit by them. There is no part of the United States where winter is not felt with more or less severity. Even in Florida the trees, many of them, lose their leaves and now and then the "northers" clear up with frost and ice. In these warmer regions the provident farmer's faculties are exercised to provide against the drouths of summer, and it is a mistake to suppose that the seasons are not nearly as well defined in the Southern as in the Northern States.

Winter, wherever the snow does not cover the ground and where the ground does not remain frozen from day to day, is a season of pasturage for cattle, for general tillage, and for the prosecution of all sorts of field work not directly connected with growing crops. The importance of comfortable shelter for domestic animals is too little valued, far north of the line where pasturage can be relied upon; neither is the great value of the winter realized as a harvest time for *manure*. This is really only an other name for wheat, corn, and cotton; the one representing the others as truly as a "greenback"-note represents gold, or silver, or copper, or, in fact, almost any thing else we value.

Hints about Work.

The Crops still remaining in the field must be secured at once. Those stored, must be protected against frost and vermin—against wet and deterioration, and every preparation should at once be made for sudden and severe cold.

Top-dressings for Winter Grain.—It is rarely advisable to apply top-dressings to winter grain so late as November, yet, if it was put in late and is either on very light land, or upon ground liable to be heaved by the frost, it may be well. In such cases prepare a fine compost of earth and guano, peat, muck, or any fine vegetable mould would be preferable to earth, as it would be more bulky for the weight. Any very fine, dry compost would answer well, but it should be bulky, for thus it answers as a mulch as well as a fertilizer. Similar applications may be made at any time during the autumn, winter, or early spring.

Water Furrows.—When the ground freezes, basins are frequently formed, where water will settle during thaws and damage accrue to grain. It is well therefore that surface drains should occasionally be made, for carrying off this water. As a rule, however, we think water furrows, as they are usually made, are productive of much more harm than good. They form a channel for water to run in, which carries off good soil, promotes a washing and gullying of the land, and often does much mischief.

Corn Fodder.—After the corn is fit to husk, the quicker the job is done and the fodder stacked or housed, the better. We would quite as lief feed corn-stalks out of a stack or Jersey barrack, as those stored in a barn, provided the stack is well made. No more than a foot of the buts should be exposed to the weather, and the top should be "pointed off" with good rye straw. It will take several bundles to top a big stack as it should be.

Stacks of all kinds ought to be securely thatched, for thus hay and straw keep quite as well as in a barn. At this season they should be examined, and if the winds have lifted the covering in spots, it should be renewed or pinned down.

Buildings.—Examine eave-troughs as soon as leaves have fallen, and clean them out. Look to the weather-boarding, and make all tight for the winter, but let old roofs alone, as a rule. Painting may be done to good advantage, as there is usually freedom from dust and flies, and there is moisture enough to close the cracks and pores of wood.

Fences.—Remove such as are not absolutely necessary. Secure laws, if possible, requiring every man to restrain his own cattle wherever they may be. As laws now are, we fence both against our own cattle and those of our neighbors. Poor fences make breachy stock. Fences cannot be mended after the ground freezes.

Manure.—Cart out all that can be plowed in; that which cannot be plowed under, place in heaps, either composted with vegetable matter, muck or sods, or covered with a few inches of good soil to turn the rain from the sides, and to keep the valuable products of fermentation from passing off. Make provision for plenty of material to mingle with the dung of animals during the winter; straw, buckwheat haum, and such things, of course, but do not neglect to gather

Forest Leaves.—The most convenient wagon for loading leaves we have ever used is made by taking a broad hay rigging with wide wings over the wheels, or stakes all around, and attaching hay-caps to the sides, hanging down into the box. The leaves should be gathered after a few dry days, and the most convenient way to collect them is with hay rakes, and large baskets into which the leaves can be pressed. Store them in bins or empty box-stalls, well trodden down. Leaves contain a large percentage of ash, and though not so valuable as straw for litter, are very good.

Sawdust.—As soon as the country saw-mills get water and begin to run, the neighboring farmers can secure sawdust for litter. This adds not only bulk, which is of great value, as thus the manure is divided and is more easily and evenly distributed, but it decays both in the heap and in the soil, thus affording organic matter and ash to the plant, while it retains the valuable qualities of the manure.

Root Pits.—As the cold weather comes on, cabbage trenches and root pits must be covered with more earth, so that their contents shall be secure from damage by frost. Leave passages, closed by straw wisps, for ventilation, or rather change of air.

Parsnips.—Dig only those needed for market or

for winter use. These are the cheapest roots to keep for spring feeding, though the market price is usually so high that few can afford to use them for that purpose. They are the best milk-producing feed we know of, especially if fed with a few quarts of oil-cake or corn-meal.

Carrots must be where no frost will touch them.

Beets and *Mangels* keep best in pits well protected. They are apt to both grow and wilt in cellars.

Ruta-bagas will bear freezing, but not repeated freezing and thawing without sustaining damage.

Soft Turnips will bear even less than Ruta-bagas. They should be fed out before they grow pithy.

Poultry.—It is not worth while to try to get ducks to lay in autumn. In England it will do very well, and they are the only poultry besides hens that will give eggs for the fall or winter. Hens may be provided with warm quarters very easily in this way: Enclose some big shed into which the manure from cattle and horses may be thrown daily; place large windows on the south side and make it as tight as possible on all sides, leaving shutters to be opened for ventilation where the drafts will not draw across the roosts. With such quarters and plenty to eat, eggs will be abundant, for sale or for omelets. Turkey hens ought to roost in the fowl-house, but keep the gobblers on the apple-tree, or somewhere where they will not molest other fowls on the roosts.

Swine—Sows with late farrows need especially warm quarters and good care for several days. Newly dropped pigs are exceedingly sensitive to cold. Half a dozen jugs of water, a little more than blood-warm, renewed once or twice during the first night, will be of great benefit to them. Somebody should stay in the pen until the pigs have taken a good meal, and sow and farrow have gone to sleep well covered with dry, warm litter. Then the attendant may go to sleep near by, where any noise of the pigs will waken him, as they may need attention at any hour. It may be set down as certain that the lives of two or three will thus be saved, and they are worth 2 or 3 dollars at least.—*Fattening Hogs* gain now very rapidly on good feed. Experiments made with boiled or soaked and steamed corn, indicate a decided gain over grinding and *not* cooking, and a probable gain over grinding and cooking. The gain comes from the fact that millers' tolls are *at least* 10 per cent. Charcoal is an excellent addition to the feed of swine.

Cows.—Feed the sound leaves of cabbages and plants that fail to head, and also the tops of any of the root crops. Those calving at this time should have succulent food, pumpkins and roots, with oil-cake. This will give them plenty of milk, and the flow may easily be maintained. They should have warm stables and a sunny yard. Cows in full milk can not eat too much of proper food. If they grow fat upon it, it is pretty sure evidence that they are better fit for the shambles than for the dairy.

Young Cattle ought to have a warm, dry, sunny shed and yard to lie in by day, and to be put in an inner, closed stable by night. A very little grain or cut and soaked corn fodder will keep them growing well, sleek, and healthy; and thus kept, they may be wintered much cheaper than in a bleak stock yard, on uncut corn-stalks.

Beeves will bear crowding to any extent within reason. No festival was ever more accommodatingly placed than Christmas, if the intention had been to make feasts of fat things easy to procure. For then the granaries are full, and the air is bracing and gives the tonic to whet the appetite. So long as steers gain enough to cover the cost of what they eat, it is well, for their manure will pay costs of attendance twice over Be sure the air of stables is pure, and that no solid nor liquid manure is wasted.

Horses.—Groom once a day. Stable nights; if not in use, let them have the run of a brush pasture by day. When there is a great variety of weeds and grass and bushes, never give more than half a bucket of water, or three quarts of oats if the horse is soon to be used. Feed well half an hour to an hour after he comes in warm. Never let a horse cool off in the wind. Throw a big woollen blanket over him; throw back half at a time to rub him down; replace it and let him stand until cool and dry; then cover with a linen duster, to keep his coat clean. A horse is better off during the severest nights with a duster on him, than warmly blanketed.

Work in the Horticultural Departments.

The notes for November are written in the middle of October, up to which time we have had the finest autumn that could be wished for. Should the present promise be kept, this will be a grand season for all fall work. It is so much better in every department to do all that can be done in the way of preparing the soil, and planting most things that we repeat the injunction to do every thing now that will save a day's work in spring. Should November prove an open month, the hints given for October will prove timely now.

Orchard and Nursery.

Planting.—In advising fall planting, we have reference to the season. Do not put trees into half-frozen ground. If the weather is still mild and rains have not made the soil too wet, planting may continue; but it is only in very favorable seasons that this condition of things lasts into the present month. Where planting cannot be done properly, the trees should be

Heeled-in.—So many trees are lost by improper heeling-in, that some writers denounce the thing altogether. There is no doubt that it is better to procure trees in the fall and heel them in properly, than to run the risks of the injury they are likely to receive by hurriedly taking them up in spring and by a long transportation, at a time when the trees are excitable. In autumn a tree is thoroughly at rest, and if taken up and heeled-in, it starts much later in spring than if allowed to remain where it grew. Proper heeling-in requires that the roots shall be thoroughly covered with earth, leaving no holes for either air or water to work their destruction.

Picking and *Packing.*—Enough has been said upon these. What late fruits remain to be gathered, should, if they are intended to keep well, be treated with the care already prescribed. It is likely that this will be a poor year for keeping winter fruits, if we are to judge from the rapidity with which fall varieties have ripened up. The fruit which is usually depended upon for keeping late, will require to be retarded by as low a temperature as can be maintained without freezing.

Cider.—The best is made this month. The apples should be thoroughly ripened, and every care taken to keep out impurities. The cellar where fermentation goes on should be kept as cool as possible. When this ceases, fill up the barrels and bung up.

Fruit Garden.

Grape-Vines, as soon as the leaves have fallen, may be trimmed. Cut young vines back to their buds and draw earth up to them, or give them a covering of leaves. Old vines that have been allowed to run wild, are very difficult to prescribe for. The best general direction we can give is to cut all the past season's growth back to two buds; recollecting that every bud will make a shoot; if this is likely to produce too much wood, thin out some of the canes altogether. Even hardy varieties will do better if laid down and covered with a little earth. This may not be practicable with old vines, but it is with young ones, and as long as it can be done it will be found to pay.

Cuttings of grape wood should be prepared now. For out-door propagation, cuttings of two buds are best. Prepare them at pruning time, and tie them in bundles of 25, or of convenient size, and bury, the lower end up, in some dry place. We say lower end up, because it is desirable to keep the upper bud dormant, and allow the lower part of the cutting to be more forward.

Strawberries.—Established beds should be covered as soon as the ground freezes. It is a mistake to cover too soon. Use whatever is available—straw, bog or salt hay, corn-stalks, etc. Do not use sawdust; though a serviceable winter protection, it is a nuisance in the spring, as it soils the berries.

Kitchen Garden.

Any one who has seen the advantage of preparing the soil by turning with the plow or spade at this season, will not be slow to adopt it.

Manure may be spread now and turned under, or the plowing may be left until spring. Stiff lands may have coarse manure and be plowed and left rough. If thrown into ridges without manure, frosts will have a most beneficial influence upon them.

Winter protection is in most localities necessary for spinach, sprouts, and the like. This is not to be applied until freezing weather. The object is to prevent frequent freezing and thawing, and if put on too soon it may injure the crop.

Cabbages.—After trying various plans for wintering cabbages, we think that followed by our market gardeners is the best. The cabbages, after freezing weather has set in and before the ground is so frozen that they are difficult to pull, are taken up and inverted, and three or four inches of earth thrown over the heads. If many are to be treated the earth is plowed to them, but with small crops the spade will do the work. Plants sown for the purpose are to be put in cold frames. Set them down to the leaves and do not put the glass on until cold weather. The object to be attained is to keep the plant dormant and quiet, but still alive.

Root Crops.—Roots in cellars are apt to deteriorate if not surrounded by sandy earth. They can be best kept in trenches or pits. Make pits in a dry place three or four feet wide and six feet deep, and stack the roots, beets, carrots, parsnips, salsify, etc., in sections; when a section of two feet in length is packed, leave a space of six inches and make another section, and so on. Fill the six-inch spaces with soil, and when cold weather comes on cover the tops with litter and put boards over that. This keeps the roots in contact with earth, and, while it prevents freezing, avoids the drying which so injures roots kept in cellars. If the supply is small, pack in boxes in the cellar, with sandy earth.

Celery.—The best results come from stacking the roots, which have been properly earthed up, in similar pits to those directed for root crops. The pit is to be made as deep as the celery is high, and about a foot wide. Pack in the roots closely together after cold weather comes on. It often happens that celery will make considerable growth this month. The storing should not take place until cold weather has checked the growth.

Lettuce.—Put into cold frames the same as cabbages. In the warmer parts of the country it will pass the winter in safety with a covering of litter.

Rhubarb.—It is much better to make new plantations in fall as the plants start very early in spring. Old roots may be divided. See article on forcing last month. Old roots force very well. We have had good success by placing them in a large cask in which a quantity of manure had been placed for bottom heat. Light is not necessary.

Sweet Potatoes should be harvested before any blackening frost touches the vines. Dig on a pleasant day, and let the potatoes dry in the sun. Pack in boxes or barrels with thoroughly dry straw, and put in a place where they will not cool below 60°.

Flower Garden and Lawn.

Lawns.—To judge from our own case, the summer has been particularly severe upon both old and new lawns. Bare spots occur where the new grass was actually killed by the heat, and there will be other places where weeds have obtained a foothold and must be uprooted. All bare spots should be attended to this fall. Pull up all weeds, and, if needed, put on some rich soil to restore the level, and sow an abundance of grass seed. Bone and ashes make an excellent top dressing. Use no compost that is likely to bring in weed seeds.

Winter Protection—It is a mistake to cover half-hardy plants too early. Evergreen boughs are most serviceable at this season. They are to be stuck

around tender shrubs, and, if need be, tied, to prevent them becoming displaced. Leaves are useful to cover beds, and they may be kept from blowing about by scattering a little earth upon them.

Bulbs.—An article on planting on page 383 last month, gives all necessary hints. The earlier this month they are planted, the better. Gladiolus and other tender kinds must be taken up before the ground freezes.

Plants in Pits and Cellars are not expected to grow, and they must be held in a dormant state by keeping them as cool as may be without freezing, and allowing only enough water to sustain life. Mice are fond of many plants, and injury from these troublesome pests should be guarded against.

Greenhouse and Window Plants.

Plants.—Air, light, heat, and water, are essential to vegetable growth. Air is the requisite most generally neglected. On mild days give abundant ventilation. Whether in the window or in the greenhouse, there should be a difference of 10° or 15° between the day and night temperature.

Camellias should have the foliage kept perfectly clean by syringing or by sponging.

Bulbs.—Whenever the ball of earth in the pots is well filled with roots, the plants may be started by bringing them into a warm place. It is best to keep some pots in reserve to allow of a succession.

Hanging Baskets usually dry out rapidly; give the earth a thorough soaking once or twice a week.

Annuals come in usefully for cut flowers, and all spare corners may be occupied by pots or boxes in which seed of Candytuft, Mignonette, and the like, may be sown. Thin the plants well.

Fumigation.—The frequent use of tobacco smoke will keep plants free of most insects. Use it in abundance in the greenhouse. Window plants are easily smoked by placing them in a box or under a barrel.

Commercial Matters—Market Prices.

The following condensed, comprehensive tables, carefully prepared specially for the *American Agriculturist*, show at a glance the transactions for the month ending Oct. 13, 1870, and for the corresponding month last year.

The fluctuations in Gold, since our last, have not been important. The speculative demand has been less active. The closing figures showed rather more firmness in the movement.....Breadstuffs have been fairly active. The receipts were comparatively light, owing to breaks and delays on the canals, up to the last week under review, when the arrivals became quite extensive, adding liberally to the available supplies, and leading to heavier purchases, particularly of Flour and Wheat for export; Corn for trade and speculative purposes; and Oats and Barley, mainly for home consumption. Prices have been variable, but, on the whole, quoted stronger, though closing somewhat less buoyantly. The samples of new crop Wheat, particularly spring, thus far received here, have been of an unusually high average quality, and in generally excellent condition. A very moderate proportion of the receipts of Corn has been of strictly prime quality. The arrivals of Oats have been mostly of new Mixed Western and White Ohio. Barley has been coming forward very freely.....Cotton has been much more freely offered at materially reduced prices, leading to a livelier business .....Provisions have been in fair demand, but unsettled in prices. Pork, Lard, and Cheese, close firmly. Cut Meats, Bacon, Beef, and Butter, in favor of buyers..... Wool has not been in urgent request, but the offerings of desirable grades have been very moderate, and prices have been well supported.....Hay and Hops have attracted rather more attention from buyers, and though opening irregularly, have been steadier in price toward the close....Grass Seeds have been offered quite liberally at lower and unsettled rates, yet have not been in remarkably active demand.....Tobacco has been less sought after at previous figures.

1. TRANSACTIONS AT THE NEW-YORK MARKETS.

RECEIPTS.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
25 days *this* m'th.	453,500	2,814,000	1,287,000	99,000	715,000	1,558,000
26 days *last* m'th.	596,000	2,354,000	1,531,000	57,500	151,000	1,429,000

SALES.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
25 days *this* m'th.	307,500	3,168,000	1,521,000	71,000	217,000	1,718,000
26 days *last* m'th.	291,000	2,656,000	1,719,000	37,000	4,850	1,531,000

2. *Comparison with same period at this time last year.*

RECEIPTS.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
25 days 1870.....	453,500	2,814,000	1,287,000	99,000	715,000	1,558,000
26 days 1869.....	383,000	2,745,000	847,000	1,500	41,000	838,500

SALES.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
25 days 1870	307,500	3,168,000	1,521,000	71,000	217,000	1,718,000
26 days 1869. ...	299,000	4,461,000	1,474,000	37,000	65,000	1,636,000

3. *Exports from New York, Jan. 1 to Oct. 12:*

	Flour.	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
1870.....	1,476,865	13,854,939	327,299	65,734	——	15,775
1869.....	1,175,456	14,782,841	1,571,785	130,948	——	46,197
1868.....	747,384	4,220,727	5,471,816	153,093	——	43,536

4. *Stock of grain in store at New York;*

	Wheat, bush.	*Corn,* bush.	*Rye,* bush.	*Barley,* bush.	*Oats,* bush.	*Malt,* bush.
1870.						
Oct. 10.....	1,809,921	476,544	53,391	184,803	1,679,658	237,453
Sept. 12.....	1,387,487	761,894	50,869	107,474	1,053,079	130,881
Aug. 8.....	1,438,876	589,973	25,437	106,101	691,766	119 046
July 11.....	1,231,913	483,540	28,816	98,600	635,068	109,478
June 7.....	706,478	69,845	21,891	94,630	488,143	108,775
May 10.....	1,158,052	110,829	20,502	126,043	440,517	83,000
April 11.....	1,845,186	285,946	23,249	187,172	756,811	99,988
March 7.....	2,509,608	484,176	39,089	278,905	1,105,194	97,139
Feb. 11...	2,902,638	534,003	62,112	322,425	1,199,672	36,214
Jan. 12.....	4,423,028	591,908	88,289	34,900	1,310,935	85,405
1869.						
Dec. 11.....	3,810,562	833,909	50,043	285,906	1,386,594	77,097
Nov. 10.....	1,616,030	693,085	31,700	31,584	281,581	66,782
Oct. 11.....	978,272	445,068	34,467	5,948	120,950	67,094
Sept. 6.....	745,121	127,736	56,081	——	183,920	134,870

5. *Receipts at head of tide-water at Albany each season to Oct. 1st:*

	Flour, bbls.	*Wheat,* bush.	*Corn,* bush.	*Rye,* bush.	*Barley,* bush.	*Oats,* bush.
1870....	290,000	10,563,000	3,533,700	358,700	338,800	3,523,400
1869....	352,800	11,682,900	4,671,600	231,800	48,800	2,271,500
1868....	212,800	7,298,700	14,214,700	330,800	1,014,900	7,565,800
1867....	160,000	2,261,800	11,937,000	300,600	485,400	4,089,500
1866....	133,100	2,448,100	21,117,000	713,000	537,300	6,835,600

CURRENT WHOLESALE PRICES.

	Sept. 14.	Oct. 13.
PRICE OF GOLD.....	113¾	113¾
FLOUR—Super to Extra State	$4 45 @ 5 85	$5 10 @ 6 15
Super to Extra Southern....	4 65 @ 9 00	5 00 @ 9 25
Extra Western.....	5 00 @ 9 25	5 30 @ 9 25
Extra Genesee.....	5 85 @ 8 60	6 25 @ 8 50
Superfine Western.....	4 45 @ 4 95	5 10 @ 5 35
RYE FLOUR.....	4 15 @ 5 85	4 00 @ 5 75
CORN-MEAL.....	4 50 @ 5 35	4 50 @ 5 30
WHEAT—All kinds of White..	1 35 @ 1 65	1 45 @ 1 75
All kinds of Red and Amber.	90 @ 1 35	1 00 @ 1 40
CORN—Yellow.....	86 @ 95	90 @ 95
Mixed.....	76 @ 83	81 @ 86½
OATS—Western.....	47 @ 55	52 @ 57
State.....	Nominal.	56 @ 58
RYE.....	85 @ 1 00	83 @ 95
BARLEY.....	Nominal.	95 @ 1 25
HAY—Bale ℔ 100 ℔.....	85 @ 1 25	1 05 @ 1 45
STRAW, ℔ 100 ℔.....	60 @ 1 10	60 @ 1 10
COTTON—Middlings, ℔ ℔....	19¾@ 20⅝	15¾@ 16½
HOPS—Crop of 1870, ℔ ℔.....	25 @ 35	12 @ 20
FEATHERS—Live Geese, ℔ ℔.	75 @ 85	75 @ 85
SEED—Clover, ℔ ℔	14 @ 14½	9½@ 10¼
Timothy, ℔ bushel.....	5 50 @ 6 00	4 25 @ 5 00
Flax, ℔ bushel.....	2 25 @ 2 40	2 10 @ 2 20
SUGAR—Brown, ℔ ℔.....	8½@ 11¾	9 @ 11¾
MOLASSES, Cuba, ℔ gal.....	28 @ 44	18 @ 36
COFFEE—Rio, (Gold, in bond)	9 @ 12½	9½@ 13
TOBACCO, Kentucky, &c., ℔ ℔.	6½@ 14	6½@ 13½
Seed Leaf, ℔ ℔.....	7½@ 55	10 @ 75
WOOL—Domestic Fleece, ℔ ℔.	42 @ 56	45 @ 56
Domestic, pulled, ℔ ℔.....	25 @ 45	25 @ 45
California, unwashed,.....	28 @ 33	25 @ 33
TALLOW, ℔ ℔.....	9 @ 9¾	8¾@ 9¾
OIL-CAKE—℔ ton	41 00 @44 00	40 50 @41 00
PORK—Mess, ℔ barrel.....	27 00 @29 50	26 25 @26 50
Prime, ℔ barrel	24 00 @24 75	21 50 @23 00
BEEF—Plain mess.....	12 00 @19 50	10 00 @18 00
LARD, in trcs. & barrels, ℔ ℔.	15 @ 16½	14½@ 16¾
BUTTER—State, ℔ ℔.....	22 @ 45	20 @ 47
Western, ℔ ℔.....	15 @ 35	18 @ 37
CHEESE.....	4 @ 14	5 @ 15
BEANS—℔ bushel..	1 20 @ 2 60	1 40 @ 2 50
PEAS—Canada, in bond, ℔ bu.	1 10 @ —	95 @ 1 00
EGGS—Fresh, ℔ dozen.....	25 @ 27	28 @ 32
POULTRY—Live Fowls.....	17 @ 18	16 @ 17
Chickens, Spring, ℔ ℔.....	19 @ 20	17 @ 19
Turkeys, dressed, ℔ ℔.....	21 @ 23	20 @ 22
Geese, ℔ pair.	1 50 @ 1 75	1 50 @ 2 00
Woodcock, ℔ pair.....	1 00 @ 1 12	87 @ 1 12
Partridges, ℔ pair.....	— @ —	1 00 @ 1 12
Green Corn, ℔ 100.....	75 @ 1 25	75 @ 1 00
POTATOES, ℔ bbl.....	2 25 @ 3 50	2 00 @ 3 25
SWEET POTATOES, ℔ bbl.....	2 25 @ 3 50	1 75 @ 2 50
TURNIPS—℔ bbl.....	2 00 @ 2 25	2 00 @ 2 25
CABBAGES—℔ 100.....	5 00 @10 00	7 00 @10 00
ONIONS—℔ bbl.....	3 00 @ 3 25	3 00 @ 4 00
CRANBERRIES—℔ bbl.....	— @ —	9 00 @12 00
BROOM-CORN—℔ ℔.....	6 @ 11	3 @ 8
Tomatoes, per basket.....	50 @ 75	75 @ 1 00
Pumpkins, per 100.....	— @ —	7 00 @ 9 00
Squashes, ℔ bbl.....	1 00 @ 1 25	87 @ 1 25
Peaches, ℔ basket.....	75 @ 2 50	— @ —
Plums, Gage, ℔ bushel.....	1 50 @ 3 50	1 25 @ 3 00
Pears, ℔ bbl.....	2 00 @ 9 00	3 00 @15 00
Melons, ℔ bbl.....	1 00 @ 2 00	1 00 @ 2 00
APPLES—℔ barrel.....	1 00 @ 2 50	50 @ 2 75
GRAPES—℔ ℔.....	4 @ 12	6 @ 8

New-York Live-Stock Markets.—

WEEK ENDING.	*Beeves.*	*Cows.*	*Calves.*	*Sheep.*	*Swine.*	*Tot'l.*
Sept. 19th.....	9,458	56	2,920	39,714	17,227	69,375
do. 26th.....	8,931	49	3,639	38,357	20,488	71,464
Oct. 3d.....	6,876	72	3,687	28,533	19,049	58,237
do. 10th.....	6,420	73	2,565	37,423	19,103	65,584
Total in 4 Weeks...	31,685	250	12,811	144,027	75,867	264,662
do. *for prev. 5 Weeks*	40,594	318	14,850	176,966	70,224	302,952

	Beeves.	*Cows.*	*Calves.*	*Sheep.*	*Swine.*
Average per Week.....	7,921	62	3,203	36,007	75,745
do. do. *last Month*....	8,119	69	2,970	35,339	94,045
do. do. *prev's Month*....	6,937	93	2,343	31,444	14,748
Average per Week, 1869.	6,275	92	1,752	28,836	15,348
do. do. do. 1868.	5,733	105	1,588	27,182	18,809
do. do. do. 1867.	5,544	64	1,320	22,154	20,665
do. do. do. 1866.	5,748	94	1,200	20,000	13,000
do. do. do. 1865.	5,255	118	1,500	16,991	11,023
Total in 1869.....	326,280	4,827	91,083	1,499,509	798,199
Total in 1868.....	288,128	5,466	82,571	1,413,479	976,061
Total in 1867.....	293,832	3,369	69,911	1,174,154	1,102,643
Total in 1866.....	298,880	4,885	62,420	1,940,000	673,000
Total in 1865.....	270,274	6,161	71,991	836,733	573,190
Total in 1864.....	267,609	7,603	75,621	782,462	660,277

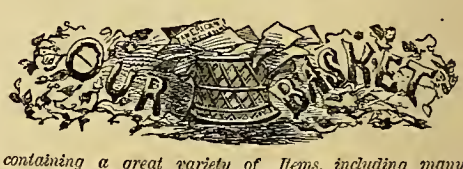
Beef Cattle.—Frosty nights and autumn winds have driven home to New York most of the summer absentees, and thus there is a demand for the best cuts of good beef. The change of season has also caused more firmness in the meat trade, and first quality heeves are in demand at good prices. The supply of live-stock has been large, and for the two weeks ending Sept. 26th, too plenty for a good market. For five or six weeks previous to October 1st, trade was dull; the large arrivals were mainly made up of thin "Texan Hoppers," and sold if at all at very low figures. For the weeks ending Sept. 19th and 26th, many drovers slaughtered their own cattle, in order to save the expense of keeping them, and sold them by the side or quarter. Dealers in light cattle have lost money. First quality beef has nearly held its own in price; some large dealers may have dropped ½c. per lb. when the purchaser took the "bunch." Below we give the range of price, average price, and figures of large sales.

Sept. 19th, ranged 6½@17 c. Av. 13¾c. Large sales 10 @16
do. 26th, do. 6½@16½c. do. 13½c. do. do. 10 @15½
Oct. 3d, do. 6½@16½c. do. 13¼c. do. do. 10 @15
do. 10th, do. 9½@17 c. do. 14½c. do. do. 11 @16

Milch Cows are in moderate supply, and the market a little improved. First quality milkers are in good demand, milkmen having raised the price of milk to 12c. per quart, they feel able to offer larger prices for good cows. Prices range, for medium to good, from $60@$90, with extra milkers and fancy at $100@$110.....**Calves** are abundant for the season, and with the exception of a few, milk fed, go at low figures. We notice but little change in quality since our last report, and quote prices as follows: Milk calves from 12c.@13c. per pound. Those known as "fed" calves from 5c.@6½c., and "grass fed" at 4c.@5c. per pound, or by the head..... **Sheep.**—There is a fair demand for good sheep, and about the prices paid last. We think that the quality of the stock has been a little better, we notice fewer very poor lots; there are yet enough thin ones though, to make the market look poor and keep prices low. Prices range for good sheep from 4½c.@6c. per pound. Lambs from 7½c.@8c., with extra fat ones at 8½c. per pound..... **Swine.**—The arrivals have been quite steady, and trade firm. Prices keep about the same as last month. We quote for light dressed, 11c.@11¾c. per pound. State and Jersey pigs sell for 13c.@13½c. per pound, net, and Western mixed, alive, 8½c.@9c. per pound.

Large Pay for Little Work.

For All.—See Page 433.



containing a great variety of Items, including many good Hints and Suggestions which we throw into smaller type and condensed form, for want of space elsewhere.

Postage 12 Cents a Year in Advance.—The postage on the *American Agriculturist* anywhere in the United States and Territories, *paid in advance*, is 3 cents a quarter, 12 cents a year. If not paid in advance, twice these rates may be charged.

How to Remit:—Checks on New-York Banks or Bankers are best for large sums; made payable to the order of **Orange Judd & Co.**

Post-Office Money Orders may be obtained at nearly every county-seat, in all the cities, and in many of the large towns. We consider them perfectly safe, and the best means of remitting fifty dollars or less, as thousands have been sent to us *without any loss.*

Registered Letters, under the new system, which went into effect Oct. 1, 1868, are a very safe means of sending small sums of money where P. O. Money Orders cannot be easily obtained. *Observe*, the *Registry fee*, as well as postage, *must be paid in stamps* at the office where the letter is mailed, or it will be liable to be sent to the Dead-Letter Office. *Buy and affix the stamps both for postage and registry, put in the money, and seal the letter in the presence of the postmaster, and take his receipt for it.* Letters thus sent to us are at our risk.

Clubs can at any time be increased by remitting for each addition the price paid by the original members, if the subscriptions all date at the same starting point. The back numbers will, of course, be sent to added names.

Bound Copies of Volume XXVIII (1869) are now ready. Price, $2, at our office; or $2.50 each, if sent by mail. Any of the previous twelve volumes (16 to 28) will be forwarded at the same price. Sets of numbers sent to our office will be neatly bound in our regular style at 75 cents per vol., (50 cents extra, if returned by mail.) Missing numbers supplied at 12 cents each.

The Agriculturist and Hearth and Home.—Since the purchase of *Hearth and Home* by the proprietors of the *American Agriculturist*, several kind friends have expressed the hope that the new enter-

prise would in no wise interfere with the *Agriculturist*, fearing that this paper might in some measure be neglected for the weekly. We can inform all such anxious friends that their fears are groundless, and we may point to the present issue of the *Agriculturist* as a proof that we intend no change in that but for the better.

Copley's Plain and Ornamental Standard Alphabets.—By Fred'k S. Copley, New York: Geo. E. Woodward, Publisher. This is a set of handsomely engraved plates giving examples of the different styles of lettering in modern use. If some of the sign-letterers of the present day would study this we should be spared the many painful exhibitions of poor lettering that are to be met with in every street. Those who have occasion to do lettering of any kind will find this a useful guide. Price $3.00. For sale at this office.

Flax Straw as Fodder.—"G. D." writes: "I would be glad if you will state in your paper if flax straw has any bad effect on milch cows. Many of my neighbors think it makes the milk thin and poor, so that it yields but a small amount of butter. Calves and all young stock seem to do well on it, and the cows seem to prefer it to oat or wheat straw."—Here is an excellent opportunity for the lactometer (Titus Oaks' or Mr. vom Hofe's) to show its value. Feed two cows three days on hay, and test their milk; at the same time give two cows all the flax straw they want, and test their milk; then change, giving the hay-fed cows the flax and the others hay, and note and report the result.

Disease among Fowls and Pigeons.—"G. K. T.," of North Adams, Mass., writes: "I have lost a good many pigeons and hens this summer, they stop eating and continue growing poorer until they die. I have found no remedy yet and have a valuable rooster sick now."—Almost everybody knows the look of the tissues and internal organs of a fowl in a state of health. Every one who has the care of poultry certainly should know this. In such a case as "G. K. T." describes as soon as the first chicken or pigeon died it should have been carefully examined. To do this, first pick the bird; then with a sharp knife cut across the ribs on each side, and across the abdomen in front of the vent, taking care not to injure the viscera. Next lift the breast thus cut free from its lower and hinder connections, and bend it over towards the head. A pair of cutting pliers is handy to cut bones or tendons that do not yield. This will lay the whole of the interior open, and each part may be examined for inflammation, disorganization, or other evidence of disease. The examination should begin at the vent and bowels, and proceed towards the head. Of course the symptoms during life should be closely observed, but nobody should expect even veterinary surgeons to tell what could be the matter with a yard of fowls on such a statement of the case. We surely would not ask one to try his guessing powers on such a case.

Substitute for Barn-yard Manure.—"F. C. W.," of Norwalk, O., asks: "When stable manure cannot be obtained, would bone-dust be the best thing to use in place of it on a sandy soil to raise sweet potatoes and other vegetables? I thought to plow it up this fall, and in the spring top-dress it with bone-dust and harrow it in."—Bone-dust is, perhaps, the very best of all manures for common use, when good stable manure cannot be obtained in abundance; but it would be decidedly better to compost with muck, sods, or good surface soil for a few months, than to apply it raw in the spring. Ground raw bones would quickly get up a heat if mixed with three or four times their bulk of earthy or peaty materials. If you have a single cow, a horse, or a dozen fowls, their manure, solid and liquid, if used to make such a compost, enriched by a liberal use of the bone-dust, and worked over as often as it comes into a good heat, adding more muck or earth, will make a big heap of compost very rapidly.

The Chair of Veterinary Medicine at Cornell.—The Report of the Conn. State Board of Agriculture for 1869, contains a lecture on the Common Ailments of the Horse, by Prof. James Law, the incumbent of the Chair of Veterinary Medicine in Cornell University. In this lecture we are astonished to find the Professor using the language which we quote below.—— After speaking of the great lack of veterinary surgeons, implying a lack of opportunities for veterinary education in this country, he said: "New York, as one of the largest stock-growing States in the Union, has led the way in establishing under State endowment a department of Veterinary Medicine in her College of Agriculture at Cornell University; and though this is as yet in its infancy, I trust that in a few years, as the material resources of our institution are developed, we shall present to the world a Veterinary College claiming equality with its best European projenitors. The country is certainly ripe for such an institution," etc. Who would suppose after reading or hearing this, that a Veterinary College already existed in the same State of New York, and, under its charter, having those excellent facilities for instruction for which he longs when the material resources of Cornell are sufficiently developed—that its faculty consisted of a President and five or six Professors, and several other instructors,—that its libraries and collections were large and valuable—that several classes of intelligent young men have been graduated and are now practicing,—and that Prof. Law had visited the institution, been cordially received, and knew much about it?—Yet this is true, and we take occasion to say so because the publication of such a statement is calculated to do the New-York College of Veterinary Surgeons serious wrong—and because we hold the institution, its honored President, Dr. Busteed, and its able corps of Professors, in high estimation. These are cultivated gentlemen and all graduates in medicine from some of our best medical schools. They are all admitted to seats in the regular medical conventions, and several are taking high stands as scientific men and as original investigators in the different departments.

In the winter of 1867–8, Dr. Busteed, the President of the New York Veterinary College, was so anxious that Mr. Cornell should provide for a Veterinary Professorship in his new University, that though in very feeble health, he made a special effort to go with an English Veterinary Surgeon, who was here at the time, and introduce him to Mr. Cornell, that the provision for a veterinary chair might be secured and a competent man found to fill it. Prof. Law's name was mentioned for the position; subsequently President White of Cornell University, when he went to Europe, saw and engaged him. Thus it was through Dr. Busteed that Mr. Law has his veterinary chair, and—fills it. Concerning the New-York College, it is proper to add the following facts. A charter for it was granted in 1857, which received important amendments in 1862, and the institution went into operation in 1864, since which time its classes, though still small, have constantly increased in numbers. In its Hospital more than 3,300 cases were treated last year, and it is almost always crowded to its fullest capacity.

We will not blame Mr. Law for forgetfulness, but regard it as unfortunate that we Americans are so apt to addle the brains of a certain class of newly-arrived immigrants, that they learn to look down upon American things.

How to get rid of Stumps and Roots.—"A. B.," St. George, W. Va., asks: "Is there no preparation which, introduced into the sap of a tree will kill it? our country (woodland) is full of white oak 'grugs,' and other bushes. Is there no easier way of getting rid of them than to use the grubbing hoe?"—To the first question we say *No*. There are, indeed, poisonous mineral salts which will kill the trees to which they are applied, but they will not hasten their decay. There is a quicker way than to use the grubbing hoe alone. This is to grub by horse or ox power. A large, strong cart-hook may be made with very short, strong, durable jaws, to be operated by horses or oxen attached to a chain. There are grubbers made for the purpose.

Premiums.—Those who wish to know all about the various Premiums are referred to the lists on pages 433 to 436.

Kansas Crops.—"F. P.," Ott wa Co., Kan., writes: "Fall wheat and fall rye yielded fair crops; spring wheat, oats, and barley, light ones; corn was a complete failure with three-quarters of the farmers, and nearly so with the rest. This is true with only a few exceptions in the counties of North-western Kansas. I learn that in all of Eastern and Southern Kansas, corn and potatoes are no better."

Cast-Iron Eave-troughs and Conduits.—"W. A. O'D." Cast-iron is rarely if ever used for eave-troughs in this country, except, perhaps, upon the cast-iron buildings now so common, but we presume it would be necessary to have them made to order if you were to put them up. The proper places to go for information would be to the makers of iron buildings. Cast-iron pipes for underground water conduits are easily obtained, being in extensive use by the Water Board, and for conducting gas. Any good American mechanic would put them up without difficulty. To prevent rusting they should be painted inside and out.

Hampshire, Franklin, and Hamden Co., Mass., Fair, this year, was considered a great success. The people gathered in unusual numbers, and seemed to be having a very good time in a very reasonable way, old and young joining in such social geniality as always does people good. The usual mistake was made of allowing notion peddlars to dispense their wares in a too boisterous manner, and sweet cider barrels attracted too many boys and men; yet we saw no drunken brawls or fights which are so common at such places. The managers and people did themselves credit in every enjoyable way. The show of working oxen was very large. Thorough-bred cattle, Shorthorns, Ayrshires, Jerseys, and Devons, were shown in large numbers, and some of them were very fine. The Mass. Agricultural College did itself and the State credit by a show of good cattle of all the fine kinds of thorough-breds, and they took several first premiums. We could not exactly understand how the Committee could award the first premium to the Jersey Bull of the College, as President Clark stated he was to be killed very soon, and his skin stuffed for a model by Prof. Agassiz, though the bull is only three years old. First-class thorough-breds should not be sacrificed so young. The show of sheep was not large, but included some very superior Cotswolds, which took three first prizes. Swine were out in only small numbers, and did no credit to the counties represented. They should improve largely in this line. The show of fruits, especially apples (46 entries), pears (16 entries), and grapes (20 entries), was large and very creditable. Root crops, made a moderate show, which we hope to see improved in coming seasons. The ladies' bread and butter show was good, though there is large opportunity for improvement in the working and putting up butter, as could be plainly seen in those *show samples* A few of the lots did credit to the makers as well as to the herds from which they came. Domestic articles of needle work, etc., were creditable. The horse show we considered poor for Massachusetts. More attention should be given by farmers to breeding fine colts, as it costs no more to raise them than to raise scrubs. A large number of people were out to see the horse show, and the fair was very satisfactory to most if not all parties.

Asbestos.—"W. R. S.," asks if Asbestos is indestructable by fire.—Yes. It is a fibrous mineral which is neither consumed nor melted in any ordinary fire. Its use, however, in a roofing composition, is not its incombustibility altogether, but because from its fibrous nature it prevents the asphaltum mixture in which it is mingled from running when heated by the sun, and giving it a "body" which is essential to its usefulness.

Covering for a Shingle Roof.—A subscriber asks: "Is there any thing with which I can cover a shingle roof, which leaks because it is too flat?" We can hardly advise simply painting with a roof coating such as we advertise sometimes, but have no doubt the regular *roofing* might be applied with good results, even to a shingle surface.

Milch Goats.—"Where can the best milk-giving Goats be obtained?" is asked by a Colorado correspondent.—The stock of goats which we have in this country, have come chiefly from those brought from various European countries to supply milk for the voyage. Hence they have been selected with only a regard for the quantity of milk they were giving at the time of sailing. They have greatly multiplied, but have been bred so far as we know utterly without care. Very good ones, however, are often found among them, and their kids are almost always raised. Adult goats are such poor food that they are not often killed if they can be otherwise disposed of, so the stock increases constantly. A selection might be made of good milch goats in almost any of our Atlantic cities, but, to get really superior stock, we would advise importing from Switzerland, or wherever in Europe care is taken in the breeding.

The N. Y. State Fair took place at Utica, the last week in September, and ranks as one of the very best shows which have ever been held by the Society. Our limited space forbids more than a general notice of its points of excellence. One was the furnishing of a complete catalogue of all entries, which was sold for 25 cts., and did more to make the exhibition really useful than any other one thing. The show of *Horses* was much larger than usual, but as it was made for the horse owners and not for the benefit of the public we have nothing to say about it. When the Society, that is the Executive Committee, can arrange to let the public see the horses which are shut up in close stables, it will begin to do its duty. It is much more important to have them exhibited than to award the 200-dollar prizes. There were about 40 head of *Shorthorns* in the pens, including the flower of Walcott & Campbell's herd, which has hardly a superior in the world. George Butts, of Manlius, T. L. Harison, of Morley, and V. W. Mason, of Canastota, were the principal exhibitors, the first mentioned making some 17 entries. There was a goodly show of *Devons*. Among the exhibitors Walter Cole, of Batavia, W. E. Arnold, of Otego, and Joseph Hilton, of New Scotland, made the greater part of the show, but there were several other exhibitors of excellent animals. In all there were 47 entries. Devons seem to be getting more popular again, and well they may be, for there is surely no more beautiful or more useful breed. The *Ayrshires* were

in fair numbers, there being 37 entries, of which Walcott & Campbell made 15, and E. C. Holden, of McGrawville, 6. The number of breeders of Ayrshires is increasing, as they are a favorite cross among the dairy farmers. There were 44 entries of *Jerseys*. Mr. W. B. Dinsmore was the chief exhibitor, but Thos. J. Hand, of Sing Sing, took the head prize away from him with a very choice little herd. Geo. P. Nelson, of Scarsdale, showed that pair of twin bulls bred by Mr. Swain, which were pictured on the cover of the *Agriculturist*. Mr. Dinsmore made some 26 entries, and we looked in vain for Crozier. *Guernseys* were shown by J. T. P. Swain, of Bronxville, and this is we believe, the first time that this breed has made any figure at one of our State shows. Mutton sheep largely predominated in their class, yet *Merinos* were in strong force. Seventy-six entries of the former are catalogued to 53 of the latter, each of these figures representing many more than that number of sheep. Jurian Winnie, of Bethlehem Centre, was the largest exhibitor of *Leicesters*. Burdett Loomis, of Windsor Lock, Conn., and Chase & Harris, of Rochester, were the principal exhibitors of *Cotswolds*. Walcott & Campbell, of New York Mills, had no competitors for the prizes offered for *Lincolns*. There were no middle-wool sheep except *South-Downs* entered. G. H. Brown, of Middlebrook, and J. Synch, of West Brighton, made most of the show. Wm. Chamberlain's *Silesian Merinos* hold their own and improve, now that the so-called Americans are "down," are beginning to be appreciated according to their merits. The *Swine* pens were very full and instructive. The *Poland* and *China* hogs of Taber & Holmes, of Cazenovia, attracted general attention from their great size, quick growth, and good points. Yet spotted pigs have never been favorites. The Jefferson Co. breed of mixed Yorkshires and Cheshires, or whatever they are, were in full force. Chester Whites, few and not in favor. Berkshires of the large breed, represented by one fine sow. Joseph Harris' Essex pigs had things pretty much their own way among the small breeds, but Richard Gibson, with some very nice Berkshire's, took several prizes. The show of *Poultry* was never surpassed in quality, and rarely in numbers. The chief exhibitors were Mr. G. H. Warren, of New York Mills, and J. Y. Bicknell & Co., of Westmoreland. Though there were many other exhibitors and very fine breeds shown by them. A pen of *Minks* attracted much attention, as did also Thos. Gould's collection of lop-eared and other *Rabbits*.

The Trial of Implements which took place during the two weeks preceding the show, enabled the prize tools to be shown at the fair which gave great additional interest. The implements tried were grain and seed drills, and manure distributors, cultivators, horse-hoes, etc, harrows, hay-forks and attachments, hay and stalk cutters, corn huskers and shellers, ditching machines, threshers and separators, steam engines, horse-powers, and many other new labor-saving inventions.

Chloralum is the trade name given in England to a solution of Chloride of Aluminum, which is claimed by the parties introducing it to be as harmless as common salt, and at the same time a most valuable antiseptic. The claims made for this compound as a disinfectant in contagious diseases will probably be investigated by those who have no interest in the manufacture or sale of the compound, and when their reports appear we shall know more about it than we do at present.

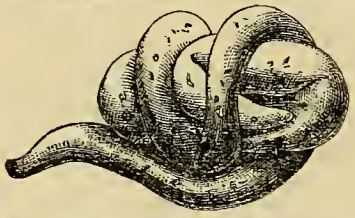
A Question Answered.—"Wm. P.," Isabella Co., Mich.—Occasionally after a cow, especially a heifer, is some weeks gone with calf, she acts very "foolish," and her actions would certainly mislead were she not watched for some time.

Fat Cattle Chromo.—We have received from Mr. Geo. Ayrault, of Poughkeepsie, N. Y., a beautiful Chromo of the four extraordinary oxen fattened by him and killed last February, by W. Lalor, of Centre Market. See page 85 (March). The Chromo faithfully reproduces an oil painting by Miss C. M. Clowes, which includes a view of Mr. Ayrault's house and picturesque surroundings. It is decidedly the best fat cattle picture we have ever seen, and is for sale by Mr. A., and at the office of the *American Agriculturist*, price $10.

The Best Fastening for Cows.—C. Thurston.—We think the common chain cattle-tie or fastening is the best. It does not wear the neck, is durable, and should be fastened to run up and down upon a post or iron rod.

Is a House better for having a Cellar Under It?—"T. C. M.," Fairmont, W. Va. Yes.—A cellar if it be a dry one, and it is not a cellar if it is a cistern, makes a great difference in the temperature of the house in the winter, and in its dryness at all seasons. If properly constructed it harbors no vermin, and if kept clean, the air beneath the floors is sweet; while the house without a cellar, let the foundations be never so well guarded, will be a romping ground, race-course, and battle-ground for all the rats about the neighborhood, and filled with musty stuff and foul odors. If a cellar were of no other use than to secure these advantages, we would have one. A house without a cellar is worse than one without a kitchen.

A Sweet Potato "on a Bender."—Among the unusual growths that our friends have from time to time brought us, none are more odd than a sweet



potato raised by Mr. Hiram Mount, of Hightstown, N. J. Its twists and convolutions can be best shown by an engraving. We hope sweet potatoes generally will not get in this way in a habit of twisting up.

Best Work on Bees.—"E. P. C.," Grand Haven, Mich.—The best work for a beginner is Quinby's Bee Keeping; you will there find the construction of hives fully explained. The Italians are much superior to common bees. See our Book List.

The Fair of the American Institute.—It is announced that this interesting Exhibition will not be closed until November 9th. It is daily attended by crowds of people who find in its various departments an abundance to instruct and amuse them. We learn that the pecuniary success is most gratifying.

The Driven Well Patent.—We know of this only the fact that a patent was awarded to Col. Green, and that it has been very extensively infringed. The policy of parties owning the patent seems to be to exact a fee for using the well, unless they have to go to law about it. We do not know whether or not they have good legal grounds for enforcing the payment, but it seems equitable that Col. G. should not suffer the total loss of profit in his invention, because he was for several years thereafter in the service of his country, and meanwhile other parties stole his ideas.

School-house Architecture.—Illustrated in seventeen designs in various styles. With full descriptive drawings in plan, elevation, section, and detail. By Samuel Eveleth, Architect. New York: Geo. E. Woodward.—It speaks well for the American school system that there should be a demand for such works as the present. Plans are given for the smallest village school-house as well as for buildings suited to large towns and cities, and all set forth with working details. Price, $10. For sale at the office of the *Am. Agriculturist*.

Fine Lilies.—When a few years ago we figured the beautiful Gold-banded Lily, *Lilium auratum*, we stated that the price of the bulbs was $5 each, but we hoped that it would soon be at such a moderate price as to put it within reach of all. This time has come much sooner than we expected, and we are now able to offer the bulbs of this, together with those of other desirable varieties, as premiums. By reference to the Premium List upon another page, it will be seen that a collection of bulbs can be obtained upon very easy terms. There is nothing finer in the way of garden ornaments than these lilies, and they are not only perfectly hardy in common culture, but they multiply readily, so that the stock once obtained will be constantly increasing.

Central Park in New York is visited by so many from all parts of the country, that everything in relation to it has a national interest. The Commissioners wisely make their reports useful contributions to the literature of horticulture and landscape architecture, and in each one give an account of the progress made in improving this great national pleasure ground. The Report for the year 1869 is embellished with abundant maps and plans as well as fine photographs of the more highly ornamented portions of the park.

Bliss & Sons' Grape Show.—The exhibition of grapes held by Messrs. B. K. Bliss & Sons the last week in September, was one of the finest we ever attended, whether we consider the larger collections or the excellence of the individual specimens. Mr. J. Knox sent from his celebrated vineyard at Pittsburgh, Pa., 64 varieties. Mr. John Dingwall, of Albany, N. Y., 63 varieties; and a very handsome collection of over 40 kinds came from Ellwanger & Barry, of Rochester, N. Y. The new hybrids of Mr. J. H. Ricketts, Newburgh, N. Y., attracted much attention; and remarkably fine specimens of several sorts came from Horace Eaton, Quincy, Mass. Mr. A. S. Fuller, Ridgewood, N. J., showed an interesting collection, but not for competition. The Committee consisted of Charles Downing, A. S. Fuller, and P. T. Quinn, who made the following awards:

Native Grapes.

For the best and largest collection of correctly named varieties, 4 bunches each, $20, to John Dingwall, Albany, N. Y.; for the 2d best, $10, to J. Knox, Pittsburgh, Pa.

For the best 6 bunches Allen's Hybrid, $3, to Horace Eaton, Boston, Mass.

Best 6 bunches Catawba, $3, to H. W. Murtfeldt, Newburgh, N. Y.

Best 6 bunches Canada, $3, to John H. Ricketts, Newburgh, N. Y.

Best 6 bunches Creveling, $3, to Horace Eaton.

Best 6 bunches Croton, $3, to S. W. Underhill, Croton Point, N. Y.

Best 6 bunches Clinton, $3, to E. H. Clark, Newburgh, N. Y.

Best 6 bunches, Delaware, $3, to John H. Ricketts.

Best 6 bunches Diana, $3, to John H. Ricketts.

Best 6 bunches Iona, $3, to H. Cornell, Newburgh, N.Y.

Best 6 bunches Isabella, $3, to Horace Eaton.

Best 6 bunches Martha, $3, to G. W. Campbell, Delaware, O.

Best 6 bunches Mottled, $3, to G. W. Campbell.

Best 6 bunches Rebecca, $3, to John H. Ricketts.

Best 6 bunches Salem, $3, to J. W. Helmer.

Best 6 bunches Senasqua, $3, to S. W. Underhill.

Best 6 bunches Walter, $3, to L. M. Ferris & Son, Poughkeepsie, N. Y.

Best 6 bunches Wilder, $3, to Horace Eaton.

Best 6 bunches Adirondac, $3, to Horace Eaton.

Best 6 bunches any other sort, $3, to John H. Ricketts, for Elsingburgh.

For the best Seedling, (never before exhibited,) White, $10, to Dr. Weeks; Black, $10, to John H. Ricketts.

Foreign Grapes Grown Under Glass.

For the best 3 bunches of any black sort, not a Muscat, $5, to L. L. Hyatt, New Brunswick, N. J., for Black Prince; 2d best, $3, to R. B. Campbell, Mamaroneck, N. Y., for Black Hamburgh. Best 3 bunches of any white sort, not a Muscat, $5, to L. L. Hyatt, for White Syrian; 3 bunches of any other sort, $5, to L. L. Hyatt.

Fungi in England.—The Royal Horticultural Society of England offers prizes for the best collections of edible and poisonous fungi; and an annual "Fungus Excursion" was held, the guests being treated to a fungus dinner and the reading of papers upon various departments of fungus lore.

The Massachusetts Horticultural Society.—That the autumn exhibition of this Society should be a success is what every one looks for and expects, but that in the face of an unprecedented drouth it should show no appreciable falling off, was indeed surprising. The people of Boston regard it as almost a religious duty to worship Flora and Pomona in their beautiful granite temple. There are many worse forms of social idolatry than this.

Petroleum.—"W. A. N." We have recommended *petroleum*, not kerosene, as a substitute for paint, but not as an oil with which to mix paints. It will not answer where colors are used; for serving as a vehicle for colors, nothing is equal to linseed oil.

Cleaning Flower Seeds.—"C. F. W." You can best free your seeds of dust, hulls, etc., by careful sifting, or winnowing. For home use it is not necessary to be at a great deal of pains. Those who prepare seeds for sale use carefully graduated sieves.

Coal Ashes in the Earth Closet.—"A Subscriber," at Bangor, Me., asks if the manure from an earth closet in which ashes are used instead of soil or dry muck, will be beneficial upon his garden, which is a clayey soil. The ashes in this case may be considered inert, and whatever effect they may have is almost wholly a mechanical one. On a very stiff soil they would be beneficial in ameliorating its condition, and may be used without fear. The dried muck used as an absorbent in the earth closet would give a more valuable manure, as it is of itself an efficient fertilizer.

Nitro-glycerine.—"G. W. R.," Columbia Co., Wis. This chemical compound is used as a substitute for gunpowder in blasting. It is exceedingly dangerous and we would not advise any one not familiar with its management to have anything to do with it.

A Hog Pasture.—A Kentucky farmer writes: "Where a hog pasture is desired, is it best to sow clover alone, or with orchard grass? And if sown in the spring can hogs go on it the first year?"——We should not sow orchard grass. Pigs prefer clover to any of the grasses. Sow red and white clover, say 12 lbs. of the former and 2 lbs. of the latter per acre, either with or without a grain crop. We have never tried it, but think that where it is desired to secure a pig pasture at once, a good plan would be to prepare the land thoroughly and sow wheat, barley, or some other grain, and seed down heavily with clover. Then turn the pigs in as soon as the crop is large enough to eat. The pigs will eat the grain crop while the young clover is growing. We should be glad to hear from our readers on this subject.

Protecting Strawberries.—H. Neff, Lancaster Co., Pa., asks if any who cultivate strawberries upon a large scale give winter protection, and if it will pay to apply it by the acre.——Winter covering is practised by our best growers and is necessary if one would obtain the best results. The covering not only prevents the plants from injury by the heaving of the soil, but being left on until the fruit is ripe it serves as a mulch to retain moisture, and also keeps the fruit from being soiled. Near the coast, salt hay is the most available, in other places straw is used, and in some parts of the West corn-stalks are found to be serviceable. Any obtainable litter that will not introduce weed seeds will answer.

Good Long-wool Sheep.—A farmer in Ohio, writes us that he has some Cotswold and Lincoln sheep that have produced wool 17 inches long, and he has had twin lambs that at 4 months old weighed 100 lbs. each. A cross between Lincoln ewes and Cotswold rams has produced some splendid sheep in England. But of course such cross-bred sheep are not a "breed." It frequently happens that grades are better than the thorough-breds, but we must have thorough-breds in order to get such splendid grade animals.

Irrigation.—A. T. Taylor, of Santa Cruz, California, wants to irrigate ten acres of garden land. He has a stream of water with a fall of 5 feet, and needs to raise the water 35 feet. In view of the quantity of water necessary for such a purpose, a ram would not answer. The best plan will be to use an overshot water-wheel with bucket capacity to consume a heavy amount of water (say 3 feet breast), and to connect with it a force-pump at least 3 inches in diameter—working with an air-chamber to give uniformity to the resistance, and so equalize the power required. The piston of the pump should be worked directly by a crank on the axle of the wheel, to avoid loss of power by gearing.

An Unpatented Harrow.—John T. Smith, of Cedar Rapids, Iowa, claims to have used for five years a harrow made with four arms at each side of a double and hinged centerpiece. The arms are placed at intervals of one foot, and are 2 inches thick. The teeth, made of ½-inch round iron, are 8 inches long, and are inserted at an angle of 45 degrees (sloping backward, we suppose). In the first pair of arms they are 6 inches apart, in the second pair 5 inches apart, in the third 4 inches, and in the fourth 3 inches. Mr. Smith says: "It is truly laughable to see the clods ground up, as they seem to dodge under the harrow. * * * The above is not patented, and can be made for between $5 and $10."—We would advise the use of steel for the teeth. It would be cheapest in the long run.

Ten Gallons of Milk a Day.—A subscriber to the *Agriculturist* in Lebanon, Iowa, writes us that his neighbor, Nelson Steed, has a cow which gives 10 gallons of milk a day, and which makes 1½ lb. of butter per day. "She is fed on clover with an allowance of wheat bran at each milking." This subscriber did not sign his name (like many others), yet he sent money for a specimen of *Hearth and Home*, which was sent to his neighbor named above. It is very curious; but hundreds of people write letters and either omit their names, Post-Offices, or States.

The New-York Poultry Show, which is announced for December 14th to 22d, promises to be a very fine one, as entries are already coming in freely. The State Poultry Society have put forth the most complete and liberal premium list ever issued in this country for a similar exhibition. This Prize-list will be sent and other information given by addressing the N. Y. State Poultry Society, P. O. Box 316, N. Y. City. We are glad to see that this Society follows the lead of the State Agricultural Society in requiring entries to be made, by letter or otherwise, before Dec. 3d.

The Connecticut Poultry Society, holds its Fair at Hartford, beginning Nov. 1st; and here too, a fine show is promised and confidently expected. G. E. Cleeton, New Haven, is Secretary.

What are old Cider Cheeses good for?—Hogs will eat old cider cheese if they get it in small quantities; the supply is usually too great to use in this way. When it is in large quantities, as about most cider mills, the best plan no doubt to economize it is to break it up and compost it with quick-lime and soda or muck. We would use at least an equal bulk of muck, and about 2 bushels of lime to the cart-load of cheese, applying the lime upon the apple. As soon as a good heat comes on and goes through the heap, the compost should be re-laid with about half as much lime. Shell or stone lime may be used slaked, sufficiently to crumble, 24 or 48 hours before using. If thoroughly slaked shell lime be used, a somewhat larger quantity will be required.

Badly Run-down White Oak Land.—We have frequently received letters inquiring how to bring up badly worn "White Oak Land," without yard or stable manure.—Without having had experience on exactly this soil, we are nevertheless confident that the application of 500 pounds of *good* superphosphate of lime will secure a crop of wheat and a good growth of red clover. This clover should be turned under in June of the year following, and 15 to 25 bushels of lime, according to the weight of the clover crop, harrowed in. Thorough tillage with a Shares or Nishwitz harrow, and the application of 300 to 500 pounds of ground bones, would, we think, put the land in heart again at a very moderate expense. Where stall manure can be obtained, or where cattle or hogs are kept, there is no need to purchase other fertilizers than plaster and lime; for every beef and hog fattened, and every cow and horse kept, ought to produce five to ten loads of good manure, and still more of good compost, which might be worth nearly or quite as much.

A Sample of Muck received from J. C. Sheldon, of Lorain Co., O., does, indeed, as he says, "look as if it might be good for poor land." It is one of the best looking samples of muck we have ever seen, and we have no doubt it will pay to haul nearly as far as the best barn-yard manure, provided upon being thrown out, it sustains the action of frost, and gets so dry that a load will be a big one. The comparative value of different specimens of muck may be tested approximately, thus: 1st, cut exactly a cubic foot, or other measure, of different kinds—the one which is lightest when perfectly dry is best, in this respect. 2d, Burn a pound or two pounds of the dry muck,—the one which leaves the least ash, in this particular, is best. 3d, Take a small shovelful, better a teacupful of the live coals of each kind, as soon as they have done smoking—the one which will give the most of a white cloud when a feather dipped in muriatic acid is held over it is indicated as being richest in ammonia. Of course we cannot carefully analyze the samples of soils, muck, rock, etc., sent us. The cost of a thorough analysis would be $25 to $50. And any examination by a competent chemist would cost at least $10; but with the tests we have suggested any man of good judgment can make a close guess as to which is the best.

Testimony about Alsike Clover.—B. R. Blackstone, of Aroostook Co., Me., thus gives his experience with Alsike clover, for which we are much obliged: "It has been described as a giant white clover, which is hardly correct, as it has many of the characteristics of red clover, which it resembles in its manner of growth. Its stalks are much finer than those of red clover, though growing to about the same hight. From a four-years' acquaintance with it, I think it will produce as many tons of hay to the acre, as either the white or red variety; that the hay made from it is equal to the best white clover hay; that it affords an excellent feed for bees; and that it winters well. I have not tried it for pasturage, but see no reason why it would not succeed well for that purpose. My soil is thoroughly underdrained by nature, like all Aroostook land, and is therefore well suited to either grain or grass."

Gapes in Chicks.—The strongest tonic which the chick will bear is often an efficient cure, because it gives the little suffering thing strength to throw off the worms from its windpipe—assafœtida, onions, and some other drugs act in this way, and seem also to paralyze the worms. Pepper acts solely as a tonic, we suppose.

Many Counterfeits of the Agricultural College Land Scrip have been discovered. Hence caution in the purchase of this Scrip is important.

Injection Pipe for Horse or Cow.—"J. R. L.," Manchester, Iowa, writes: "In the *American Agriculturist* for October, you offer several simple devices for giving a horse or cow an injection, but the simplest and cheapest way is to take a common gourd, such as is commonly taken for a dipper. Cut it the same as you would for a dipper, then cut off the end of the handle, and you have a first-class syringe. I have tried it on several occasions, and found it to answer every purpose."

Gypsum, Plaster, Land Plaster, Plaster of Paris, Sulphate of Lime.—These all mean about the same thing, if we regard the chemical character of the article bearing so many names.—*Gypsum* is the mineral as found in the rocks, and often forming rocks and even mountains, so abundant is it in some places. It is quite soft, easily cut or ground, consists of sulphuric acid and lime combined, together with several per cent of water, which it holds, but which heat will drive off. When ground, it becomes *Land Plaster*, or *Plaster*. The finer and whiter kinds are used for interior finishing by masons, but are first "boiled," as it is termed; that is, the ground plaster is heated and stirred until all the water is driven off, which makes the mass appear to boil, and thus *Plaster of Paris*, or boiled plaster, is formed. This is the material of which the plaster casts of busts, images, and architectural forms are made; for when wet to a paste with water, it takes it up and combines with it again, becoming hard and stone like. The action of plaster on different soils and crops cannot be said to be well understood; it is, however, a very valuable and cheap manure, affecting especially clover and other leguminous plants; though most of our common crops are often greatly benefited by it.

Apple-leaf Louse.—"G. T.," Mich., has dipped the ends of the twigs in tobacco water, but the lice come again. We can give no better advice than to keep at them next spring when they first appear.

Sundry Humbugs.—Well, well! Here's a curiosity shop, and no mistake. Our Assistant has been busy for a month past receiving, examining, marking, and assorting the Humbug Schemes returned to us from 35 States and Territories—and such a lot! Here is a good sized basketful from 26 States, all from the swindler who calls himself "James Fisher & Co., 58 Liberty Street, N. Y." The Post-mark dates on the envelopes returned to us, indicate that he meant to get his circulars out just when the October *Agriculturist* went to press, so as to have a month to operate in before our next issue. (We shall have to open a humbug column in our weekly *Hearth and Home* soon, so as to give the rogues only 7 days swing.) But we got hold of his scheme in time to give him a passing card last month. Jas. Fisher is somewhat shrewd, but he will have to find a good many dupes, to get back the expense of printing and postage on the circulars that have come to us. He sends his scheme in type print, and then sends along his lithograph letter to enforce it. He entreats, implores, and commands you not to write him by mail, but to send by Express only. Good for friend Gayler, who forbids his getting any letters through the P. O. But enough of him. He is doubtless all ready with a new lot of circulars, giving a new name and address, to go out as soon as this column is stereotyped. Our readers will find the operations of these swindlers fully set forth in our last paper (Oct. No., pages 365-6). To several inquirers we repeat that their names are all recorded on the books of these swindlers. That the P. O. box number is often addressed, indicates, where this is done, that persons, connected with their own Post-Offices are in league with the operators, and it will sometimes be well to look into it. In one case, however, a man employed to collect the names for the swindling lists described last month, stationed himself in a P. O. and took down the names of callers and noted the number of the boxes from which they got their letters; and we presume this is often done, without any connivance of the Post-Office clerks. Many letters indicate that Edward B. Kane, 23 Dutch Street, *alias* James A. Holt, 116 Fulton Street, *alias* Thomas G. Allison, 85 William Street, *alias* Francis Ogden, 39 Maiden Lane, *alias* etc., etc., etc., is sending out the "Queer" circulars largely. He, too, taboos letters by mail—will only deal through the express, and urges you to call at his den (and get cleaned out by his bogus policemen, as described last month).—Rufus Stockton, (whose real name proves him a descendant of old Mother "*Hubbard*," and who, like her, "lives in a cupboard" in the upper regions of No. 204 Broadway,) is ready to swindle you, but you must not address him by mail, nor by the Amer. Merchant's Union Express Company. We hope soon to see *every* Express Co. denounced by these operators. N. B.—Every one, coming to N. Y. to respond to one of these urgent invitations to call, should take a genuine policeman along as an escort. J. D. Terhune & Co., 208 Broadway, still offers you $10,000 for $500, and less in proportion: that is to say, he will pocket all you send, and give you not one cent of value in return.—Chas. Humble, No. 1 Chambers St., N. Y., ditto.—R. C. Steele, North Cohoke,

N. Y., with sundry *aliases* of both name and address, pretends to have plenty of the "*fac similes.*"—Wm. E. Anthony, 688 Broadway, N. Y., ditto. He manufactures a false slip of the N. Y. Herald to help him out....A favorite address used by many kinds of swindlers is "210 Broadway," because *there is no such number!* What was No. 210 is cut out by Fulton Street, which runs between 208 and 212 Broadway.——All sorts of dodges, change of names, etc., are resorted to by the swindlers to avoid the detention of their letters at the P. O. Great credit is due to the N. Y. P. O. people, for their faithfulness in withholding letters from those assuming bogus names. Mr. Gayler, Special Agent of the U. S. P. O. Department, and editor of the *Mail*, published at the N. Y. P. O., has been and is indefatigable in his efforts to prevent the desecration of the mails by these various swindlers. We have a list of **146** *different names* assumed by these operators! A large number of these were given in our September number, pages 327-8....Jas. L. Budd (see our Sept. No.), now turns up at 703 Second Avenue, and dreadfully wants you to send him $10 for the Havana Lottery, and get $10,000 for it sure. He would n't take the $10,000—a single "X" is all he wants. Generous man! *alias* expert swindler!....More "Music Boxes,"—one to play 24 tunes for $5! We will furnish one to play 1,000 tunes for 10 cents—that is, a little reed whistle such as the boys use. N. B.—You must supply the tunes; we can only find the "music box." A genuine box playing only 4 tunes will cost $12 to $15. Caution: Beware of all cheap music boxes....To I. B. B., and others. We can't undertake to get back your money of these chaps. The sailor who gave the elephant a golden guinea, to see him deposit it on a high shelf, when asking for it to be taken down again, was told "that was a trick they had not taught the animal." The music box, and many other swindles have not learned the art of paying money back. ....None but *very* foolish people will give any heed to the circulars and tickets pretending to give for $10 a chance at 16,000 or more watches pretended to be worth $100 to $750 each. Every such scheme is a swindle. *If* any thing comes back for the $10 sent, it will always be a cheap affair, worse than no watch at all, however finely galvanized may be its case. The cheap watch swindle is blossoming out again: look out for it. *Never* send any money with a ticket offering much for little. If you wont believe us, "go in" and get swindled. We have invested many a dollar in this way for the benefit of our readers, and always proved the thing a humbug. We have on hand some of these splendid $25, $50, $100, and $250 watches furnished on tickets at $2 to $10 each. They would be dear at 25 cents a bushel!. .."Fourth Street, Williamsburg, N. Y.," both North and South (for there are two of them), is properly numbered. If G. H. Dayton *intends* to give the holders of his "tickets" $25 to $50 *worth* of watches, etc., for only $2, why don't he tell you at *what number* to find him? We have a lot of his promising tickets, but shall wait about a century before we bite at the bait, and advise everybody else and his wife to imitate our example. And just the same of Hill & Co., 615 Broadway, N. Y., who pretend to offer us a "solid gold watch, double case, full jewelled, and patent lever movement, valued at $65.00," all sent by express, for $5.10. You are too good, Messrs. "Hill & Co."... Two or three Doctors (some under the title of "Universities," "Associations," etc., and others "on their own hook") have got a great "notoriety" by broadside advertisements, books on consumption, well-*manufactured* certificates of cures, ingeniously put forth claims, etc. And—"tell it not in Gath!" many of our professedly religious journals open their columns and *pages* to these pretenders. We hear of hundreds and thousands of dollars sent to them often by persons, who we had a right to expect possessed more common sense. We have one infallible rule, and we know it is a correct one—and we speak not at guess, nor from imperfect knowledge, nor from unfounded prejudice—: *Every one of these advertising doctors, whether by circular or in newspapers, whether an ear doctor, a lung doctor, a consumption curer, or the curer of any other human ailment, is a quack—who is without any standing among reliable, honest physicians; and no persons should put any confidence in him, or intrust their lives or health in his hands, or hold any parley with him by letter or otherwise.*—This is our answer to a drawerful of letters asking about this, that, and the other one of these great name "doctors."....There are good map publishers, and we admit such to our advertising columns, but it is well to give a wide berth to those who make great offers pretty well mixed together. Several inquirers can "guess" who the bogus ones are. ....Any one expecting to get an Aluminum, or Oroide, or any other good watch, for $3, or $5, or $10, may depend upon being cheated, either in the quality of the watch, or cheated out of all money sent.—Not one of these fellows, offering you a watch for $10 or less, will send one worth even the money you do send. Few of them will send any thing except a putting off or other false letter....To Inquirer. All these books on "Matrimony made Easy," and the like, are sheer humbugs.

For Your Hearth and Home.

In reference to the "Announcement" made last month, we desire to say, that the *American Agriculturist* is to be in no way changed, otherwise than to make it more and more valuable. It will continue under the care of the same Editors, with all the additional help that can be of any possible service in making it interesting and useful.

Our new WEEKLY HEARTH AND HOME, is designed to be especially adapted to every *Home Circle*. It contains editorial articles upon the live topics of the day, designed to give the readers in brief space, a comprehensive, instructive, and impartial review of the various topics occupying public attention. An Agricultural and Horticultural Department of only moderate extent, prepared by the best practical men in the country, will give about all that will be desired on these topics by the great mass of readers, in country or city. The Household and Children's Departments shall be second to no other journal in the country, both in interest and instruction. Other Departments embrace Art, Science, Literature, and general Miscellany, giving just what every family needs to know. An outline of news is now given, but it is the intention to make this Department also very comprehensive, by the addition of a supplement to each number, brought down to the latest moment of going to press. This will begin with the new volume, Jan. 1st, and embrace important condensed financial and commercial information, with reliable news from the produce and other markets, and the condition and prospects of the crops, etc., which will be of great value to all having grain, stock, and other produce to sell or to buy.

A large number of finely executed and finely printed engravings will be given in every number—amounting in the aggregate to about **$20,000** in a volume. In this respect HEARTH AND HOME will hardly be excelled if equalled by any of the high-priced illustrated periodicals.

In short, it is believed that the Weekly HEARTH AND HOME *will be just such a journal as will be in the highest degree desirable and useful to* EVERY FAMILY *in the whole country—one that every man will be glad to take to his* HOME CIRCLE. *The price is put very low, only $3 a year, and less to clubs, so as to bring it within the reach of as wide a circle as possible.*

We respectfully request all our readers to **try** HEARTH AND HOME for a year, not to the neglect of the *Agriculturist*, from which it will be entirely different in matter, engravings, etc., but to take it in addition. The two journals together will furnish a mass of information, (including **$30,000 worth,** or more, of **Engravings,**) that can scarcely be found elsewhere for the same money. To encourage an acquaintance with both journals, we offer them both together for one year for $4,—and as all our intended improvements are not yet consummated, *we will supply both papers the balance of this year without charge, to all who subscribe now for the year* 1871.

"I Can't Afford It."

This is the answer that will meet you from three-fourths of all the cultivators in the whole country, when you ask them to buy books or to subscribe for papers devoted mainly to their business. It is a great mistake—an unfortunate mistake. They can't afford *not* to procure all such papers they can get hold of. Begging pardon for referring to our own papers (and there are many others that might be included), let us illustrate: Suppose a man pays $4 for *American Agriculturist* and *Hearth and Home*. In the course of a year he will get a *great number*—many hundreds—of hints and suggestions that he would not otherwise receive. Suppose he does not carry into practice a single thing he reads, or even suppose he rejects every recommendation given in the papers. Yet the very act of criticising and rejecting what he reads will quicken and enlarge his reasoning faculties, and turn his mind into new channels of thought; and at the end of the year he will be a wiser man, a better thinker and planner, and he will be a better cultivator—one who will turn his hard labor to better account. But it is impossible that a man should read the thousands of suggestions from other practical men, without gathering very useful ideas—ideas that will bring money with them. Then how much better off will be his wife and his children, if he have these, if their minds are stored with information. How many idle or vicious thoughts will be driven out, and their places taken by useful ones. Reading advertisements alone will quicken a man's wits. He sees what others are doing, and he insensibly learns business habits. The market news, and reports upon the state of the crops, will almost invariably help in selling and buying to better advantage. We could enlarge upon these topics had we room. Need we add that that man who has his mind filled with the ideas that reading papers and books supplies, is far *happier* while at work than the one who toils like the ox, with few higher or more comprehensive thoughts?——A penny or two per day, or the price of a single pair of shoes, will supply a store of reading all through the year. "Where there is a will there is a way." One wise man we have heard of, sets aside an acre of corn each year, and all he can raise and sell from it, he invests in papers and books. His boys, and even his wife and daughters take great interest in that acre, and it is cultivated so well, at odd hours, that it is the most productive one on the farm.

"TWO STRINGS TO THE BOW."

The Ten Thousand fortunate persons who have hither to received valuable Premium articles from this office (nearly all of whom are now at work for other articles,) and all other persons who wish to join them, will find by the Table on page 433 that our Publishers add a second paper, the Weekly HEARTH AND HOME, to the list, and allow premium clubs to be composed of subscribers to both papers, counting one copy of *Hearth and Home* the same as two copies of *American Agriculturist*, and *vice versa*—both at the regular rates ($1.50 and $3.00,) and at the club rates ($1 and $2.50.) This will give a double field for enterprise. Some will want one paper and some the other, while a multitude will find it advantageous to take both papers, as they do not clash, or take the place of each other. At least **30,000** persons (one at every P. O.) may secure a capital premium this year. At half the Post-Offices in our Country there is abundant room for two to five or more premium clubs. At *each* of some of the larger offices we have **1,000** to **1,300** subscribers for *American Agriculturist* alone, or enough for twenty large premium clubs, and the addition of *Hearth and Home* opens a field for a still larger number of such clubs. This is a tempting opportunity for any enterprising person—man, woman, or child—to secure a valuable article without any outlay of money.

WE BELIEVE ALL our Friends will be Greatly Pleased with our New *Weekly Journal*, HEARTH AND HOME. Thousands have asked us to issue the *Agriculturist* weekly, but that seems to meet a great want in its present form and issue. *Hearth and Home*, owing to its large pages and frequent issue, will not only furnish abundant *other* reading matter, differing entirely from that in the *Agriculturist*, but will also supply a great amount of fresh news, miscellany, etc. It will also, by reason of its large and numerous engravings, supply the place of Illustrated Journals containing less desirable and often objectionable reading matter. We respectfully solicit our old readers to *add* this journal to the *Agriculturist*, for a year, and give it a trial. We believe they will be greatly pleased with it. To facilitate this, we offer both journals from now to the end of 1871 for $4, which has been the price of *Hearth and Home* alone, before receiving the improvements and enlargement. Those having the *American Agriculturist* already, can furnish the extra copy of it to a friend.

Large Pay for Little Work.

For All.—See Page 433.

Asparagus Bed.—"Subscriber." If your old bed is planted in the old way, with the plants a foot or so apart, all that you can do to renew it is to give heavy, surface manuring. If the plants are three feet apart, then trenches can be opened between the rows and manure placed in them. Asparagus beds are usually made in the spring, but there is no reason why they should not be made in the fall. Abundant manure with plenty of room between the plants are necessary to the best results. Stable manure, bone-dust, and phosphate, are all used. Set the plants with the crown at least 6 inches below the surface. See article in Jan. last, p. 22.

Moles—The Latest Cure.—A subscriber in Maryland, apparently in all seriousness, says: "Raise the ground in the center of $1\frac{1}{2}$ to $3\frac{1}{4}$ of an acre, one foot high and 5 feet in circumference, sloping, and put the head of a horse in the center of the mound, $3\frac{1}{4}$ of the head sticking out, nose down. You will not be troubled with any more moles."—Mr. Fuller is expected to try this before he awards that $100. We can't say whether the head should have a horse attached to it or not: better try both ways.

Hubbard's Early Curled Leaf Tomato.—E. Hollister and D. L. Hall, in the report of the Alton (Ill.) Hort. Soc., speak in commendation of this variety. We have heard favorable reports from others.

Keeping Tuberoses, Caladiums, and Cannas.—"A. B. C. N." Tuberoses may be kept too hot and dry, if such an atmosphere is maintained as is common in some houses. To guard Tuberoses, Caladiums or Cannas, against shriveling, they may be wrapt up when dry, in cotton wadding, to the thickness of an inch, and placed in a drawer or upon a shelf. This will prevent the dry air from acting on them, and will keep them plump until spring.

Osiers on Sandy Soil.—We recently called upon Mr. Charles Clifton, a basket-maker, with horticultural tastes, who lives at Suffolk Station, on Long Island. The land at that place bears a natural growth of scrub-oaks and pines, and one would hardly select it as a suitable place for growing Osiers, which are generally thought to flourish only in a rich and moist soil. We were quite pleased to find a thrifty young plantation of willows which is already furnishing valuable basket material. A comparison of the rods with those from France and Belgium, confirmed Mr. Clifton's statement that those produced upon his own grounds were greatly superior to the imported ones.

The Agriculturist Strawberry.—For the benefit of the editor of The Horticulturist, we quote the following from the Report of the Committee on Small Fruits of the Alton (Ill.) Horticultural Society. "From M. W. Seaman, Shipman—very large and fine specimens of 'Agriculturist.' As a berry for the amateur we consider it one of the best; requires high cultivation and to be grown in hills."

Know your Enemies.—The Alton (Ill.) Hort. Soc., which is always doing some sensible thing, has ordered a cabinet of insects injurious to the fruit grower. Every Horticultural Society should have a "rogues gallery" of this kind.

Delaware Grapes.—The Delawares have been a great success this year. The crops have been fine, and the fruit of excellent quality. On Sept. 15, they were selling in the N. Y. market for 8c. per lb., at retail. So abundant and cheap were they that wine-makers have bought them for pressing. The finest specimens we have seen were from Mr. Capron, Walden, Orange Co., N. Y., and were not open to the fault usually found with the Delaware—that of being too small.

Grouse Cochins and Plymouth Rock Fowls.—Y. S. Sturgis, Boston, writes: "Will you please describe the plumage of the 'Grouse Cochin' fowl in the *Agriculturist*. I saw the other day some fowls with plumage like the 'Dominique,' and with feathered legs, and thought they might be 'Grouse Cochins.' If not, can you inform me what they were? I also saw a hen of the Brahma form, and with feathered legs, said to be a Dark Brahma, but I think she was not, as her plumage was not cloudy, but beautifully spangled like a Hamburg. Can you also tell me of what breed she is?"—The fowls were probably what are called in Massachusetts, Plymouth Rock Fowls. These, as we have seen them, are large Dominique-colored fowls, with single combs and yellow legs, more or less feathered. What the other fowls are we are at a loss to conjecture, unless, indeed, the tendency to spangled feathers often seen in Light Brahmas has been cultivated or has accidentally developed. Grouse, or Partridge, Cochins are described in the "Standard of Excellence," of the London Poultry Club: The cock as having a red face and deaf ear, a red head, red hackle and saddle with a black stripe down the middle of each feather, rich, dark-red back, and shoulder coverts, wings, rich, dark-red; the greater and lesser coverts, metalic, greenish-black, forming a wide bar; breast, under parts and thighs, black; tail, black; legs, dusky yellow.——The Grouse hen as having, face and deaf ear, red; head, brown; neck, reddish gold color, with a broad, black stripe down the middle of the feather: the rest of the plumage, rich brown, with distinct pencilings of darker brown following the outline of the feathers; legs, dusky yellow, with feathers of the same color as the body.——The Partridge hen is described as very similar to the Grouse hen, but having more brilliant contrasts of color, and having "the shafts of the feathers on the back, shoulder coverts, bow of the wing, and sides, creamy white. There is no difference between Partridge and Grouse cocks.

Smutty Corn.—G. Thompson, Leelenaw Co., Mich. The spores of smut are so very minute that we know of no way to prevent their distribution, and thus prevent your having smutty corn another year. The best you can do is to cut away the smutty ears as soon as discovered and burn them. This will prevent a scattering of spores (seed) from your own crop. Before planting next year thoroughly wet the seed in strong brine or solution of blue vitriol, and dry off in plaster or ashes, this will kill any smut that may be adhering to the seed. Of course you will not put corn next year upon the land where the crop was so badly affected this season.

Eggs—A good Average.—Mrs. I. J. B., of Angelica, N. Y., kept an account of the eggs laid by a lot of $\frac{1}{4}$-blood Dorkings in 1869. She began with 14 hens, and ended with 9. The total number of eggs laid was 1,219. Had no hens been killed or sold, we calculate she would have had 1,517 eggs, which would make more than 108 eggs to each hen. They had only common care.

Thorn Seeds.—A. W. Comfort. The seeds do not germinate until the second year. Put them in a heap and cover with several inches of soil and let them remain a whole year: they may then be sown in the fall or in the spring, as may be most convenient.

The Freemason Peach.—Messrs. Kemp & Kerr, nurserymen, Denton, Md., send us specimens of a new variety called the Freemason, which originated with Mr. Nathan Todd, of Caroline Co., Md. It is a large, white free-stone, with a red cheek. It is of excellent quality, and very late, ripening after the Smock, and vastly superior to that variety. The tree is represented as hardy and an abundant bearer.

How to keep Eggs.—"Subscriber," of Plainfield, N. J., asks: "Can you inform me in what manner hens' eggs can be laid down for winter use?"—We have had tolerable success in keeping eggs when they were simply greased with sweet lard. Packed in crocks filled up with milk of lime and covered from the air, eggs will keep very well, but though sweet, are not like new-laid eggs. The nearest approach to perfect preservation of the eggs is accomplished by placing a few at a time in a wire basket (an ox muzzle will do), and plunging them into a kettle of actively boiling water for a few seconds, say while one can count 20 rapidly. It is well to raise the basket once or twice and lower it suddenly in the water so that the eggs shall float up and settle back again into a changed position. This surrounds the egg next the shell with a film of coagulated albumen, which is perfectly air tight.

Seedling Peach.—G. L. Osborn, Dobb's Ferry, N. Y., sends us a yellow-fleshed Clingstone, weighing $8\frac{3}{4}$ oz. It is from a tree which bore this year for the first time, and ripened 51 peaches nearly as large as the specimen sent. The fruit is beautiful in color, and of good quality. The variety, if it continues as it has begun, should be exhibited another year and brought to the notice of pomologists.

The Sylvester Apple.—Dr. E. Ware Sylvester, Lyons, N. Y., sends us specimens of his seedling apple, which we figured in January last. Though not as high colored as the one we figured, their eating qualities showed that we did not overestimate the variety.

Bone Manure.—"S. S. P.," writes: "I have the bones of 2,000 sheep near here, and I think it possible to convert them into manure. Please tell me how to do it through your valuable journal."——Sheep bones may be ground in an ordinary bark mill, at least they may be cracked up tolerably fine. They may be cracked up in a corn and cob mill, without much risk, if it is a strong one, especially if they are not fresh. They may be sledged upon a rock and so pounded quite fine. If they can be reduced to about the fineness of ground tan-bark, they may be laid up in layers with horse manure, hen dung, and other heating substances, and so subjected to the action of fermentation, they will decay. The heap will require to be frequently wetted to keep the fermentation within bounds; and it will probably be best to make it over with fresh manure after it has ceased to heat up readily.

Board Roofs.—W. M. Carr asks: "Will a roof made of 1-inch pine boards, well pitched with pine-tar or pitch and well sanded, cost more than a pine shingle roof?"—Ans. No.—"Will it not last as long as any wooden roof?"—Ans. No. The sun will wring and warp it all to pieces, the pitch will drip from the eaves, and you will be sick enough of the job, no matter how well you rabbet or batten the edges. A well-made asphaltum or coal-tar roof, made with cheaper boards, covered with best quality roofing felt, would be cheaper than shingles and last with proper care nearly as long. A roof of good pine or spruce boards, planed on the under side, having a rather sharp pitch and covered with good, strong slate, will cost more than shingles, but will last a lifetime, and be a great safeguard against fire.

Hand-Power Machine for sawing wood, etc., is inquired for. Manufacturers can answer profitably by advertising it.

Mounting Maps.—B. Plumstead. We hope you will not find it necessary to mount any maps of the "seat of war" hereafter, but as the information may be useful for other maps, etc., we give it. The muslin, which should be an inch or two larger each way than the map, is to be tacked to a smooth board or table; then cover the back of the map with a good, smooth coat of boiled flour paste, made as stiff as it will work well with the brush, and place the map, paste side down, upon the muslin; if the map is large, it will require two persons to do it well; and it must be handled very carefully, as it will tear readily when wet with paste. When the map is properly laid down, smooth it with a soft cloth, rubbing gently from the center towards the edges, to remove all the air bubbles. Put down the edges securely, and let it dry. In drying it will wrinkle badly, but when perfectly dry, will be quite smooth. As the paper dries it shrinks, and brings a powerful strain upon the tacks, which should not be more than an inch apart. They need not be driven down to the heads, as they would then be difficult to remove. When thoroughly dry, take out the tacks and trim the cloth.

The Providence (R. I.) Journal is so well known as one of the best journals in the country, that it does not need our praise, but we must say a word in commendation of its column of "Rural Notes and Notions," which show not only an excellent knowledge of rural affairs, but exhibit a pleasing fancy and genial spirit not often met with in writings of this kind.

Old Plaster.—"What is the value of old plaster, taken from the walls of houses, used as a top-dressing?"—Old plaster contains lime and hair, both of which are useful upon the land; besides, a considerable portion of plaster of Paris is often present. To use it as a top-dressing on grass, it should be beaten small and run through a coarse sieve. In fact, this should be done at any rate, if half its value is to be gained.

Unfortunate.—Many complaints have reached this office concerning the dealings of Thomas B. Smith & Co., of Plantsville, Conn., for whom a single advertisement was inserted in the *American Agriculturist*, several months since. Their method of doing business appears to be such that we cannot advise parties to send orders to them.

Expensive Processes.—A correspondent in Michigan complains that some of the operations we describe are too expensive to be followed in a new country, and cites the account we gave of maple sugar making last spring, as one of these. He says: "The cost of sugar house and fixtures would be more than all the sugar we should make for years to come." And farther along he says: "Here, everything is new; we have to chop and log, and burn the timber, and then work among the stumps for years." Exactly so. You have started to make a farm in the wilderness, and are not ready for all the aids that machinery and inventive skill are ready to offer. The preliminary work must be done first, and in a few years you will be prepared to adopt improved processes which now appear, and really would be, expensive in your new surroundings. As far as the maple sugar article goes, it contains suggestions which will materially aid those who, from necessity, are obliged to make sugar in the primitive way. The same may be said of other articles.

An Ohio Hog-Pen.—An enterprising Ohio farmer writes us that he purposes building a hog-pen "having a floor 2½ feet from the ground, supported on pillars. All the stable manure made during the time the hogs are feeding, I wish to haul on one side of it; then clean the hog-house every day and all will be mixed together. As fast as it accumulates to the level of the floor, haul it away to make a 'mixen.'"—We suppose the chief object is to have the horse manure absorb all the liquid from the pig-pens, and that the floor is so constructed that the liquid will run on to the horse manure. Could not the liquid be carried to the mixen by a drain, and the manure from the pig-pens and from the stables be conveyed at once, daily, to the mixen? It may be a good plan, but we do not see why, when the pig-pen is cleaned out every day, the manure could not be put into a large wheelbarrow and taken to the mixen at once. The horse and cow manure should also be taken to the mixen every day. We think this would be less work (and being done daily, would be less likely to be neglected) than hauling the horse manure to the pig-pens.

Wheat growing in Water.—"W. T.," of Tennessee, sends us a head of Tappahannock wheat "out of one hundred that grew in the bottom of a ditch 3 feet deep, with a running stream of water, half an inch deep, from about the time it was sown until the middle of May, when the water failed in the ditch." It was a fine head of wheat. There were 54 kernels in the head, and all of them except two were very plump and of good length. They were remarkably white for red wheat—whiter than the average samples of amber wheat. The fact that it grew in running water for several months proves what we have often asserted, that it is merely *stagnant* water that is so injurious to wheat during the winter and spring months. No matter how much water there is in the soil, if it is only frequently changed so that the roots of the plants can get oxygen.

"Can Timothy be sown in the Spring and a crop obtained the first year?"—No. But if sown in August or September, on rich, well-prepared land, a fine crop of hay may be obtained the next summer. When sown in the fall, without any other crop, it should be mown, not pastured, the first season.

Bee Notes.—*By M. Quinby.*

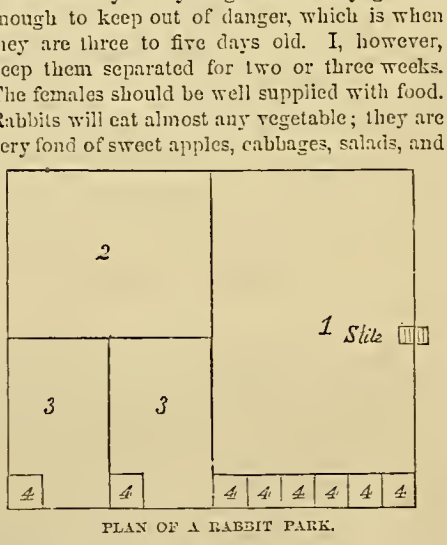
The Apiary in November.—Bees that have been properly cared for will need but little attention this month, but any neglected duty should be remembered now. Store away unfilled boxes for future use. If any contain dry comb, it may remain in them another year, provided it be kept cold enough this winter to destroy the eggs of the moth. Of course, it must be protected from the mice. Honey to be strained will need to be warmed, unless just taken from the bees. If any colonies lack stores, take up or feed as prudence dictates. If they have combs enough to hold it, Southern honey or syrup of sugar and water may be profitably fed. No one need expect to feed with profit at this season of the year, if the comb to store it in has to be built. If straw hives have been prepared for winter, bees and combs can be transferred to them now as well as later. The progressive bee-keeper will see the necessity of having movable frames of some kind. Hives may be painted now without damage to the bees in them. Hives intended for swarms another year should be painted. Some light color is preferable. Two or more colors should alternate in the row where the hives are at all crowded, so that the bees of each hive can recognize their own without difficulty.

Hiving Bees.—"J. H. P.," describes a method of hiving bees successfully. But as progressive bee culturists will lessen the number of natural swarms to be hived annually, they will be more interested in the means of preventing swarms from issuing at all....He also describes a "smoker" which consists of an old tin teapot, in which he puts a piece of newspaper that has been saturated with solution of saltpetre, and dried, and then ignites and blows the smoke among the bees to quiet them. This is doubtless good; but it would answer well made into a roll, and used without the teapot. As rotten wood is equally effectual, more convenient, and more economical, I would use it. Hard wood should be selected. Have found Apple-tree very good, not so decayed but it will hold together. Saw into strips an inch square, of any length, and make dry. Set fire to one end, and with a small pipe of wood or tin, held by the teeth, the smoke can be directed to any part of the hive among the bees. This smoking weapon is one of the bee keeper's chief aids. With it, he can go into the interior of the hive, examine every cell and bee unmolested. No one can fully appreciate the charms in natural history that this subject presents, who is in constant fear of stings. One of the first lessons in improved bee culture is, to get rid of fear.

Progress in Bee Culture.—Predictions made not long since, have been more than realized. Recent experiments have demonstrated that if the room in our hives for surplus boxes is quadrupled, that the amount of honey stored will be increased proportionally. It further demonstrates that if the extra room in the hive is filled with clean, empty combs, and emptied with a machine as soon as stored with honey, this amount is doubled. To state particularly. In the old system of box-hives and caps, it required good apiaries and good seasons to give an average of 30 lbs. box surplus to the hive. With the next improvement 150 lbs. was realized. With the facility for emptying combs—the next step—we have 350 lbs. of the purest quality. When a crop of wheat can be doubled by any new method of culture and no more expense, and farmers become assured that there is no humbug about it, enough are ready to adopt it. Where the crop of honey collected can be increased tenfold by a certain method there *ought* to be enough interested to collect the millions of pounds now wasted in this State alone. I am not without vouchers for these statements. The space allotted to the Apiary in the *Agriculturist* shall be devoted to instructions tending to these results. They are within the reach of all that have the ability and energy to adapt means to ends.

A Rabbit Park and Rabbit Keeping.

"A Farmer's Boy" finds rabbits profitable and gives a sketch and description of his enclosure for keeping them. It was intended for the Boys and Girls' columns, but as it will be likely to interest older persons too, we give it here. Though written by a boy we find his account more explicit than those we sometimes receive from much older people: "My park is 20 yards square. I have pickets sawed 2 inches thick, from 7 to 11 inches broad, and 8 feet long. These, I set, three feet in the ground, thus leaving five feet above ground. It is in four divisions, as shown in the accompanying diagram: first, there is a main yard or court (1) for the rabbits to stay in generally; 2, is a room for the young; 3, 3, are breeding rooms; 4, 4, are boxes, these are entered by a small hole 3 or 4 inches from the ground. If they are not provided with boxes they will dig holes in the ground. When I expect a litter I put the female in a room by herself as the male will sometimes destroy the young before they get old enough to keep out of danger, which is when they are three to five days old. I, however, keep them separated for two or three weeks. The females should be well supplied with food. Rabbits will eat almost any vegetable; they are very fond of sweet apples, cabbages, salads, and



PLAN OF A RABBIT PARK.

purslane. Plantain is not very good for them, as it puts their bowels out of order. Fresh water should be kept by them at all times. In winter they will eat dry hay like sheep. They are very fond of sugar, and it is amusing to see them take a lump in their paws and sit upon their hind legs and devour it. Rabbits are great scratchers, and if a cat should get into a pen of grown rabbits it will seldom get out alive unless assisted. Every country residence should have at least a small park of domestic rabbits, they are no trouble to keep, and much pleasure and profit can be derived by them."

How to make the Boys good Farmers.

Induce them to take an interest in the farm, in the implements, in the stock; tell them all your plans, your successes and failures; give them a history of your own life, and what you did and how you lived when a boy; but do not harp too much on the degenerate character of the young men of the present age; praise them when you can, and encourage them to do still better. Let them dress up for the evening, instead of sitting down in their dirty clothes in a dingy room. Provide plenty of light; thanks to kerosene, our country homes can be as brilliantly and as cheaply lighted as the gas-lit houses in the city. Encourage the neighbors to drop in evenings. Talk agriculture rather than politics; speak more of the importance of large crops, of good stock, of liberal feeding, and of the advantages of making animals comfortable, rather than of the hard times, low prices and high wages. Above all, encourage the boys to read good, agricultural *books*. Papers are all well enough, but an intelligent boy wants something more and better. Get him some good agricultural book to *study*. Read it with him, and give him the benefit of your experience and criticism. When he has mastered this, buy him another. In our own case, we owe our love for farming principally to the fact that our father talked to us of every thing that was doing on the farm; answering all our questions and encouraging, rather than refusing, our childlike desire of helping him to plow, to chop, to let off water, and fire the brush heap.

Ogden Farm Papers—No. 11.

I can now report the apparent results on the different parts of my cornfield, as described in the April number. There has not been much difference in the growth over the whole field, and that the necessity for "topping" most of the crop to get food for the cows has, to a certain extent, vitiated the experiments, so much so that it is not worth while to measure the product of the different portions.

After a careful examination, however, I am confident that the largest growth, the best earing, and the greatest freedom from weeds, are observable on the narrow strip that was manured in September (on grass,) plowed in November, and only harrowed in the spring just before planting. That which lay in sod until May, and had a strong growth of grass, induced by the fall manuring, was next best, even after making due allowance for the earlier planting of this side of the field. The land on which rye was grown last year did hardly so well as that which produced corn fodder at the same time (and roots the year before.) The rye had been manured with fish guano, and the corn fodder with manure from the cellar.

The whole field had been very heavily manured, and the whole has produced a very good crop. It is not yet husked, but may safely be estimated at 70 bushels of shelled corn to the acre, or 665 bushels on the 9½ acres. This would be worth, at present prices here for Northern corn, over $800, besides the considerable value of the fodder. Still, I do not think the corn crop pays so well as other things would, and every thing cannot be grown by a farmer who has only a limited supply of labor

For example, with the same land and the same manure I could have grown at least 7,000 bushels of Ruta-bagas and Mangels, which would have been worth more money, (either to feed or to sell), would have left the land in better tilth and freer from weeds, and would have produced in their tops at least an equivalent for the corn fodder. The cost of the labor would have been somewhat more, but not enough to compensate for the difference in other respects. Then again, I can easily buy corn for its feeding value; roots I cannot; and on a stock farm they are invaluable. Furthermore, on the same land I could, with the same manure and with much less labor, raise in 3 cuttings, at least 25 tons of hay of a quality that would be worth at least $20 per ton, probably more. Either of these crops would be much more advantageous for me than the corn; and I have about made up my mind to raise but little, if any, corn after this.

One thing seems to have been demonstrated by the above described experiment, and that is —contrary to the teaching of the Country Gentleman—that it is better to plow in November the land that has been manured for corn in September, than to leave it until the spring. At least this is the case on my land, where the action of the winter's frost on the upturned furrow of heavy soil more than counterbalances the spring growth of grass. On lighter land the case would possibly be changed.

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Referring to my previous commendation of my self-regulating windmill, it will be unfair not to tell the whole story and say that the rather sharp wind of the 18th of September brought it to grief. It had weathered the gale of September, 1869, which was the most severe that has blown on this coast since 1815, and I considered it good for any test, when this comparatively moderate wind broke its main casting. Perhaps it contracted a fatal flaw a year ago. It will cost about $20 to replace the broken parts, and I lose its use for three weeks at a time when it is most necessary to have an abundant supply of fresh water to make up for the effect of the drouth. However, as it has run for twenty-eight months without the least breakage or interruption, giving us a water supply that is really invaluable, I do not at all regret the investment, and if it were swept entirely away to-morrow, I would order another at once.

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The drouth continued with unabated fervor until the end of September, and has cut into my hopes at a fearful rate. Judging from 1869, I should have had 110 lbs. of butter per week in September, instead of that I had only from 65 to 73. Corn fodder that should have carried us well through to the time when beet tops could take their place, failed early in September, and we had to commence topping the field corn before the kernels were fairly glazed. The roots will be a very short crop. Millet that would have been—in an average season—three feet high in October, is heading at one foot. Vetches that were planted early enough to make an ample growth before frost, are hardly worth cutting. The after-growth of grass is almost nothing. In short, it has been such a drouth as makes any farmer of poor land sick of the whole business. At the same time the drouth, as I have before said, is not without its valuable lessons for the future. On the few tracts that have been superabundantly manured, and where the cultivation has been thorough, the growth of every thing has been so very much better than on the poorer and harder land as to make it manifest that, with land in the right condition, we could snap our fingers at the severest drouths. Not that we would not suffer by them, but our suffering would be vastly mitigated. Some of my land that has had no manure of any kind, is considerably less burned than a neighbor's adjoining field—a difference that can be attributed only to its being well underdrained.

All this brings us around to the fundamental truths of *High Farming*. If there ever was a season when deep and thorough cultivation, rich and copious manuring, and the rapid succession of crops were imperatively necessary, it has been in this year of Our Lord, 1870, and my experience has demonstrated it. My manure has been spread over about forty acres, and my work over sixty acres. If the whole had been concentrated on twenty acres, I should be to-day in much better condition; for, not more than about one-fourth of all my land will have produced enough to pay the cost of its seed and cultivation; while if I had concentrated my efforts with a judicious selection of crops, I should have made money by them. If the result has been so unfavorable in my own case, it has probably been no better with thousands of others, who with even less manure and labor at command, have spread themselves—very thin —over twice as much land.

It may be set down as an unfailing maxim that, in the long run, the only work that *pays* (in farming as in every thing else) is *thorough* work. *If* the season is good, *if* insects are not troublesome, and *if* all go well from seed-time to harvest, any ordinary farming will pay. If one has broad acres that will support small herds or flocks in the wettest and dryest seasons, he may make a fair profit from their management; but if he attempt to cultivate poor land with scant manure; wet land without draining; or dry land without abundant cultivation and manure; he will not absolutely fail, perhaps, and he may squeeze along and *save* a little money for his worn-out and disappointed old age, but he will not *make* money as he would if his land were deep, well drained, and fat with manure, and himself a wide-awake, active, intelligent man, who is up to the times and eager to take advantage of every circumstance that can help him along. Had I my own way, I would yearly top-dress every acre of mowing land with five cords of good manure, not straw, until it had become so rich as to produce four tons of dry hay, whether the season were wet or dry. I would top-dress my pasture lands until they would carry two heavy steers to the acre throughout the season. I would apply an equally heavy dressing to corn land, root land, and wheat land, until their crops were raised to the highest possible point. I would neither plow nor mow an acre of land that needed draining, nor would I neglect the fullest measure of thorough cultivation necessary to keep crops fresh in the driest times. This would cost frightfully of course, either in money or in hard work or in both, but it would make me a perfectly independent farmer sooner than any thing else could. My crops would of course be affected by the vicissitudes of the weather, but they would always be so absolutely good and so much above the average, that either in quantity or in prices I should get a sure reward for my work. If it is objected that these statements are not sustained by my experience at Ogden Farm I will confess that, and make the further confession that in none of my farming operations have I had precisely such experience. But in addition to the farm, I have been cultivating an extensive market garden, in which farm crops have been sometimes grown on land that had received the almost fabulous manuring and the extra preparation that gardening requires. These crops have in no instance failed to pay well for the whole extra outlay; an outlay so great, that few farmers would dare to encounter it.

I have to-day visited a neighbor, whose farm contains only twenty-eight acres. He has owned it and managed it for many years. His stock this year consisted of several horses and oxen and twenty-eight cows, in addition to a considerable number of fowls. He grows no fancy stock of any kind; sells milk, cream, roots, poultry, and eggs. He buys some grain for his poultry and some meal for his cows, though he has a good field of corn every year. All of the pasture required for his large stock, and all the hay and other long fodder consumed on the place, together with a good supply of apples, are the product of his twenty-eight acres of land. The great secret of his success is to be sought in plenty of manure and thorough work, managed of course in the most skillful manner. His cash sales for 1870 will fall but little, if any, short of $4,000.

I have another neighbor, who begun with a fine farm of over one hundred acres, and capital enough to have made a first-rate farmer of an energetic man. He has probably never sold enough from his place to pay his yearly bills, and his land has run down to low-water mark. These two men, living in the same township, and with equal facilities, illustrate perfectly the truth I have endeavored to set forth above. The one went to work in an over-cautious, penny-wise way, scrimping here and scrimping there, trying to cheat Nature out of her just dues; and he has come to grief. The other went into farming as a business that was worthy of his best efforts, and wherever he saw an opportunity to invest a dollar in his farm to good advantage, he made the investment as soon as he could get the dollar. He acted on the belief that no bank in the world will pay such good interest as well-farmed land; and, so far as the plain and simple farming he has followed afforded him the opportunity, he has omitted nothing—nothing that could add to his facilities. The result is, that he is more than forehanded, and that, if he had his life to live over again, he would turn his attention to farming as the best opening that offers itself to a young man of energy and ability.

Neither of these men is a marked exception. There are in New England hundreds like the one, and thousands upon thousands like the other; and the same contrast is common throughout the country. I wish that I might honestly gain popularity with the larger number of the readers of this paper by praising their economy, their shrewdness, their close figuring, and their endeavors to make a little go a long way. But it seems to me that I shall do them a better service by telling them frankly—even at the risk of forfeiting their approval—that their economy means a saving of money that entails a waste of all the glorious opportunities of their lives; that their shrewdness is really a persistent cheating of themselves, a holding of the finger on the spiget while the bung runs a full stream; that their close figuring, however laudable may be its object, has for its effect the paralyzing of their best energies, and is daily grinding them down to the servile and ill-paid duties of farm laborers who are too often cheated even of their daily wages; and that their efforts to accomplish great results with scanty means lead to the running down of their farms,—the running out of their live-stock,—the running away from home of their children,—and the slipping through their

fingers of those rewards for faithful and patient execution that it is their honest but misguided endeavors to gain.

I am not speaking now of worthless, shiftless, ne'er-do-wells, who work as little as they can, and spend too much of their time at the corner grocery, but of the steady, honest, industrious, hard-working, practical farmers who hold their noses to the grindstone year in and year out; who try every year to put some money, be it ever so little, out at interest, and whose only fault is that they have not awakened to the fact that American farmers, except in a few favored localities, can no longer with safety, throw themselves on the generosity of a bountiful Nature, and at the same time try to steal the march on her at every turn. Their great need is to recognize the fact that if they would be successful now and henceforth, they must devote to their business, not only all their ability to work, but all their ability to think as well, and all the capital they can command, for which they see a profitable opening in the improvement of their farms and their stock.

If agricultural papers have any mission in this world, it is to lead their readers to take this view of their business; for however important it may be to give directions for performing the different operations of improved farming, it is vastly more important to awaken a spirit that will not rest, short of the greatest improvement possible.

Horse Papers for Farmers.—No. 10.

One of the effects of the introduction of more thorough-blood into our race of farm horses will be to develop a taste for horseback riding for which blood horses are much the best adapted. It is a wonder that so few of our farmers ride at all, especially when a love for the exercise seems to be born with every boy in the land. It is often more convenient for a farmer to drive in a wagon, as he gets a good deal more out of his horse than the mere transportation of himself, and it would seem very awkward to a northern farmer to bring home parcels from town in his saddle-bags. This question of convenience will always make it the custom for farmers to go on wheels to market, or (with the family) to church; but that they should so generally prefer this mode of locomotion on all occasions, is unaccountable on any other plea than that of custom,—a custom which surely grows out of the dearth of even tolerably trained saddle horses. In England,—a country from which we may at least learn much about country life—it is the rule for a farmer (old or young) to do his local traveling in the saddle; and there can be no doubt that this accounts for much of the robust health of the farming class, and for most of the prevalence of good saddle horses in all parts of the country.

It would be easy to fill a few pages of the *Agriculturist* with a description of the delights of horseback exercise, but surely this is not necessary in writing for the perusal of men and boys who have, hidden in their veins, a strong infusion of the blood of a horse-loving ancestry. There is no pleasure so keen to a six-year-old boy, in town or country, as that of mounting a horse; and that he forgets his natural taste is only a proof that it has been allowed to become dull through neglect. Give him but half a chance, through his youth, with horses that are fit to ride, and he will become more and more fond of the congenial pleasure, and it will be easy to make him a horseman for life,—not merely able to ride when necessary, but anxious to ride habitually. My own boyhood was, fortunately, enriched by this sort of teaching, and —although some horribly long rides during the war were a severe test of my enthusiasm,—I shall be very old or very infirm when I begin to take kindly to wheels.

Viewed purely as a matter of business, there is perhaps no advantage in horseback riding. One may get over as many miles in a day in a buggy as in the saddle,—and more work may be got out of a horse than the mere carrying of a man or a woman. But we farmers (while keeping an eye out for the main chance) *must* give some heed to the pleasures of life. It is all important to make our lives as happy and as cheerful as we can,—to bring them, in point of entertainment, as nearly as we can to the standard of town living, and so give to the country all the attractive features we can. There is enough that is humdrum at the best, and wherever it is possible to throw in a little gilding, it is our duty to ourselves and to our families to do it.

Assuming that all will admit the desirableness of bringing up children to love horses—to know how to ride,—not merely how to "stick on," but how to ride really well—and to be both fond and a little bit proud of their riding, let us see how we may best set to work to cultivate their taste in this direction.

It is important, in the first place, to have a horse fit for the work. Not a clumsy, overworked "clam-shell-footed" brute, who carries his chin on a level with his knees, and goes blundering along the road seeking stones to stumble over, and hanging half his weight on the bit, whose withers are so low that he carries his rider on his shoulders and churns his heart's blood at every step; but a high-headed, light-footed, wide-awake animal, that can trot without dragging his toes on the ground—that can canter as though he had a center of gravity somewhere about him—that can carry the weight of his own head and neck without help from the rein—and on whose back a saddle will keep in place without a crupper. If he is good looking, all the better, but in a saddle horse "handsome is that handsome does." His good looks "come from the heart," and his beauty must be more than skin deep. I have seen raw-boned animals, that looked any thing but well when hitched to a post, that were really handsome when in motion under the saddle. Those who care for the refinements of saddle horses,—as who that cares for horses does not?—will find in Herbert's Hints to Horsekeepers full instructions for their selection; but ordinary farmers' horses are the only source from which most farmers can choose, and among these there are often to be found really elegant animals. In every township in the country there are plenty of horses that, with all their defects, will answer pretty well. Let us hope that before many years, good horses for the saddle will be more common. The chief thing to be sought is proper action, and the best way for an inexperienced man to judge of this is to turn the animal into a field with other horses and get them skylarking together. If he goes plunging about as though he would drive his forefeet into the ground at every step, he wont do; if he seems to bear his weight equally on all four feet, and to step lightly on all, he is worth a good trial. The gait may be best judged of in the trot.

Having secured the horse, more than ordinary attention must be given to his gear. The saddle is of less consequence than the bridle, but it is not unimportant. It should be comfortable for both horse and rider, and *it should not be too thick.* The nearer together the horse and rider can be placed the better it will be. The English hunting saddle, which has a thick roll in front of the calf of the leg, is the best, but the "McClellan" saddle which is used in the army is very good. With this the rider sits directly on the raw-hide-covered tree, and there is only a thin blanket between this and the horse's back. It is cheap, comfortable, and in every way good. Such saddles can be bought (second hand) in every large town. The stirrups should be rather heavy, and large enough for the ball of the foot to pass easily through them.

The bridle should have two bits, a snaffle (or jointed bit) and a curb. This latter should have a strong chain and powerful leverage, but the bar that passes through the mouth can hardly be too easy (that is, large and smooth). The "port," or arch, of the mouth-piece, should be low—the lower the better for any civilian's use. There should be, of course, a separate rein for each bit. *Under no circumstances should a martingale be used.* It would take too much space to give the many reasons for this injunction, but it is sound. A properly adjusted, and properly handled curb bit will be much more effective than any martingale, in keeping the horse from throwing up his head.

Another very essential part of the outfit is a *pair of spurs.* In fact the curb bit and the spurs are the most important of all. They are the *sine qua non* of the adjuncts of riding. A skillful horseman will manage almost any horse without snaffle, stirrups, or saddle, but he would be practically powerless to control a vicious horse without both curb and spur, or to ride any horse perfectly well, without them. It is the custom among those who know nothing about riding to object to both of these as "cruel." A man may beat his horse with a cudgel, or saw his poor mouth until it is raw with a jointed snaffle, without losing his standing in society; but if he puts a pair of spurs on his heels and uses a curb bit, he becomes only less a brute than the poor creature he rides. Now, the curb is not necessarily cruel at all. It is not intended to be tugged at by the rider, either to hold the horse or to hold himself in his seat. It constitutes a barrier beyond which the horse's mouth must not go. He will soon learn this, and if the rider holds the bit, rather than the bit the rider, he will find that within his prescribed limits his mouth is comfortable, and all goes well. Beyond this limit he cannot move without pain or discomfort. Of course much depends on the way in which the bit is managed. The rider's hand must be "soft as the touch of love, and firm as the grasp of steel." The beginner must be chary of the curb until he has mastered its use, and taught its meaning to the horse.

As the curb bit is a barrier to the horse's movements forward, so are the spurs a barrier to his movements backward. Their tendency is to make the horse keep his hindquarters well "in"—that is, to have his hind feet well under him, and to prevent him from backing away from the curb. Like this latter, they must be used with knowledge and skill, and the horse should be taught to bear their touch without flinching. It is almost never necessary to strike him with them. He will soon learn to respect them and to *anticipate* their use by obeying the least pressure of the calf of the leg.

I have been able to do nothing more in this article than to give a few very general hints on a subject that is fully treated in the books, and as I am admonished by the editor that these Horse Papers must be cut short, I postpone until the next number, similar hints on the subject of "Learning to Ride."

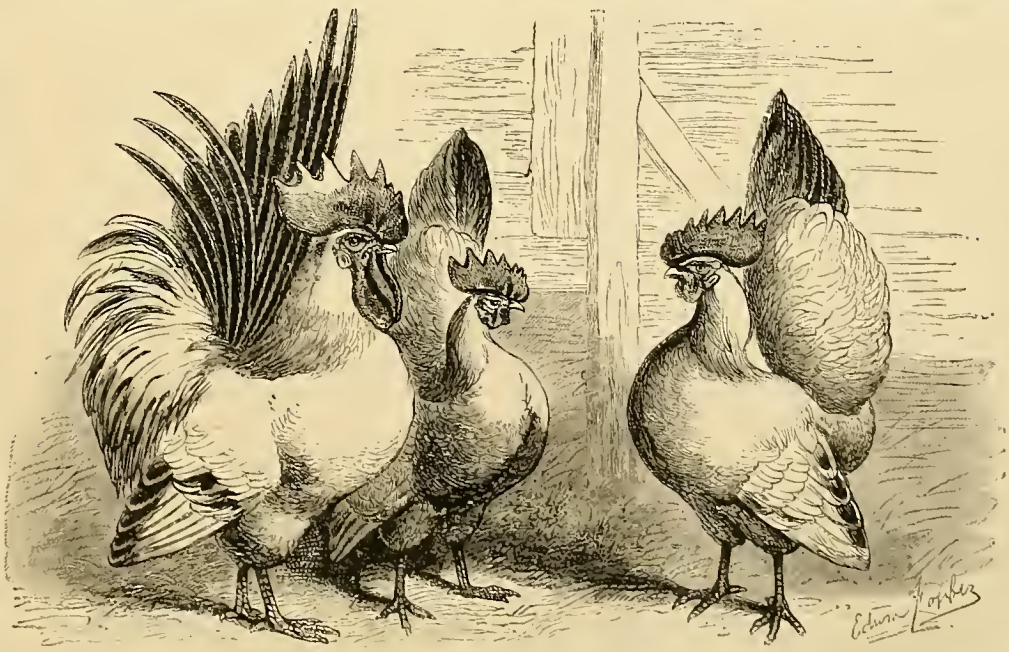
The Prairie-dogs.

There never was a greater misnomer than that of calling the little animal, of which we present an engraving, a Prairie-dog. It has nothing canine about it, and its true relationships are among the rodents with the Squirrels, Marmots, and Woodchucks. We generally speak of *the* Prairie-dog, though there are two and possibly three species within our territory; but the most abundant is the one we have figured, which is found from Nebraska to Texas. Various names have been given to it by different authors, but the one adopted by our best naturalists is *Cenomys Ludovicianus*. It is so much like our common woodchuck in general appearance, that it is well enough described by calling it a woodchuck in miniature. Its length varies from ten to thirteen inches, and its weight from one to two and a half pounds. The ears are very short, and the tail about one-third as long as the body. The general color is reddish-brown; the shade varies with the season, and is lighter upon the lower part of the body than elsewhere. The tail for one-third or one-half from the tip is black, the rest being of the color of the body. The Prairie-dogs are social animals, and live in large communities known as "dog-towns." The animal burrows, and with the earth from the excavation forms a dome-shaped hillock which contains as much as two cart-loads of earth. These mounds are often seen upon the prairie as far as the eye can reach. The writer once, in Western Texas, was three days in passing through one of these dog-towns, and as the distance made by the train was estimated at twenty miles a day, the colony was at least sixty miles in length and extended on each side of the road as far as we could see. In each mound is an opening, sometimes two, extending downwards at an angle of 45 degrees. How deep the animals burrow we cannot state, but some assert that they go down until water is reached. The animals are evidently on visiting terms, as well-beaten tracks extend from one burrow to another. Where these animals abound in such numbers, the herbage is very scanty, and we have frequently seen "towns" where the surface in every direction was so barren that it was difficult to imagine how such a multitude could subsist. The animals are very fond of a species of purslane, which grows in great abundance in some localities. It is said by some travelers that the towns are extended as food becomes exhausted, and that a large share of the mounds are uninhabited, the animals having left for better pasturage. No one seems to have watched the Prairie-dogs sufficiently close to be able to give a very full account of their habits. If the traveler approaches a town cautiously, he will see the animals in constant motion and chirping to one another in the liveliest manner. As soon as he is seen, some animal gives the alarm, and away they all go, each for its own hole, where it stands with its head projecting and uttering its shrill bark. The Prairie-dogs are very difficult to shoot, as they dodge with great rapidity, or if shot, they tumble into their holes out of reach. Those who have eaten the flesh of the animal pronounce it excellent. The young are easily tamed, but make rather uninteresting pets, as they sleep a great portion of the time. In the dog-towns one meets with rabbits, numerous rattle-snakes, and a small burrowing owl. The prairie men assert that these live in common with the prairie-dogs, but it is more probable that they find it convenient to occupy the vacated dwellings of the prairie-dogs. The owl (*Athene hypogæa*) is a most comical bird, and may frequently be seen upon a mound, bowing and bobbing its head in an amusing manner. It is believed by the prairie travelers that it serves as a sentinel, and gives the prairie-dogs warning of the approach of danger. It is more probable, however, that the fondness of the owl for young prairie-dogs, and the convenience of finding ready-made burrows, are the reasons for its being so generally found in the dog-towns. Rattle-snakes, frequently mentioned as inhabiting dog-towns, are so abundant in parts of the far West, that it is difficult to say if they are more frequent there than elsewhere.

THE MISSOURI PRAIRIE-DOG.—(*Cenomys Ludovicianus.*)

Japanese Bantams.

The Japanese seem, even more than the Chinese, to have a taste for things *outré*, and for monstrosities, both in nature and in art. Probably the most remarkable contribution to our poultry yards, received from this interesting country, is the breed of bantam fowls, of which we give an engraving, taken from drawings made of specimens exhibited by J. H. Fry & Co., at the last exhibition of the New-York State Poultry Society. The whole form and style of these unique fowls are such, as to distinguish them from all others, although they vary greatly in color and markings among themselves. The group shown in the engraving were young fowls, and the sickle-feathers of the cock not fully developed. Their bodies are small and very compact; the legs short and smooth; combs single, erect, and very large in both sexes; heads carried well back, making the fowls remarkably "pigeon-breasted." The backs almost disappear between the necks and tails. The tails are carried more than erect, leaning forward, and in the case of male birds frequently extending further forward



JAPANESE BANTAMS.—*Property of Messrs. J. H. Fry & Co.*

than their heads. The fluffy "coverts" at the base of the tails are quite remarkable. Their wings are carried drooping, like several other varieties of bantams. The color of the trio shown was white, with black tails and tips of flight feathers. They are a sprightly, vigorous, hardy breed, at present rather a novelty, and likely to bring pretty high prices for some time to come. They should be bred to preserve their peculiarities of form in the highest possible perfection; their plumage in each flock should be kept true to certain definite markings; very small size should be a requisite in breeding-stock.

Walks and Talks on the Farm—No. 83.

We have now a good prospect of getting our creek cleaned out, deepened, widened, and straightened. We have done more or less work on it every year among ourselves, but nothing really effective. We would agree to do a certain number of days' work, but first one and then another would stay away until even the most enthusiastic got disheartened, and the work was abandoned. Finally we held a public meeting and every one present signed a petition to the County Judge to have the work done under the new Draining Law, [Laws of the State of New York for 1869, Chap. 888,] and we are all rejoicing at the prospect of having our low, wet, swampy land converted into the most productive portions of our farms. I understand that in Wayne Co., and in other parts of the State, the farmers are availing themselves of this new law to a most gratifying extent. The principle features of the law are these: When there is any low, wet land belonging to several persons that needs draining for the sake of the public health, or the benefit of agriculture, any freeholder interested can petition the County Judge to have the land drained, and have the expense assessed on the property benefited. The County Judge appoints three Commissioners, one of whom shall be a civil engineer, and none of whom shall be personally interested in the work. These Commissioners shall examine the land, and, if in their judgment the work is necessary, they have power to borrow money and commence operations at once. I was most agreeably surprised at the meeting to find how willing every one was to have the work done. One intelligent German who owns only seven acres of land, declared he was willing to be assessed $100 as his portion of the expense, if it was necessary. I do not think it will cost him $10; for we find that the assessed value of the land to be drained through is over $25,000, and it is assessed at not one quarter what such land will be worth after it is drained. We may meet with difficulties in carrying out the work that I do not foresee, but if so, they can probably be overcome. The provisions of the law are just and equitable. When properly examined it will be found that there is not an oppressive feature about the law. Those only are called upon to pay who are benefited by the work. But much will depend on getting good men to act as commissioners.

There are very few people who know how to drain low land where there is apparently little fall, and yet it is one of the simplest things in the world. In cleaning out an old creek or natural ditch, we must of course commence at the lowest point and work up stream. Then dig deep enough to leave the water on a dead level. In digging open ditches from the main stream up into the land adjacent, commence at the main stream, and work up through the lowest parts of the land and *dig deep enough to make the water follow you from the stream up into the land.* In this way you are sure of losing no fall. When properly done there will be no shoveling of loose earth. Let the spade be thrust down an inch or two below the level of the water in the completed ditch, and the few crumbs of earth that fall from the spade will settle to the bottom of the ditch in the water, and do no harm. "But you are making the water run the wrong way. We want to get the water out of the land, not to bring the water from the stream up into the land." True, but wait until the next rain comes, and then you will see the water run *down* this ditch with a rapidity that will astonish you. The bottom of the ditch is on a dead level, but as soon as the rain raises the water at the upper end it will begin to flow down to the stream and will not stop as long as there is any water on the land. I have dug a good many ditches in this way, and am sure that it is not only the best but the cheapest method. No matter how dry the land is, you have always water to level by and need never go an inch deeper than is necessary, nor ever feel uncertain whether you are deep enough. There is no after shoveling. You get all the fall there is, and when the work is finished there is nothing more to be done. A great deal of ditching is done on low land that is comparatively useless from neglecting to observe this simple rule.

A farmer in Illinois writes: "I am thinking of feeding some sheep this winter. Can get stock sheep (that will dress from 35 to 40 lbs.) at $1.25 to $1.75 per head. Such sheep, well fatted, have sold in the Chicago market, (40 miles distant,) for the past three springs, at from $5 to $7 per head, with the wool on. With bran at $15 per ton, corn 60c. per bushel, potatoes 50c., oats 40c., barley (No. 2,) 75c., and oil-cake $35 per ton, will it pay to feed them, and which will be the best and cheapest grain to feed?" Corn at 60 cents per bushel (or $21.50 per ton), is by far the cheapest *food*, but the oil-cake and bran will make the richest manure. Mr. Lawes' estimate is that the manure from the consumption of a ton of corn is worth $6.65; from a ton of bran $14.59; and from a ton of oil-cake $19.72. That is to say, *if* the manure from a ton of corn is worth $6.65, that from a ton of bran is worth $14.59, and from a ton of oil-cake $19.72. The manure may be worth less or more, according to the price of products and the value and richness of the land. When the land is naturally rich, and products low, this estimate would be too high, while in older settled sections it may be too low. The cost of food per ton, less the value of the manure, would be:

	Price per ton.	*Value of manure.*	*Actual cost of food.*
Corn	$21.50	$ 6.65	$14.85
Oil-cake	35.00	19.72	15.28
Bran	15.00	14.59	0.41
Oats	25.00	7.70	17.30
Barley	31.66	6.32	25.34

I do not think there is much difference in the *nutritive value* of a ton of corn, oil-cake, oats, or barley, and consequently, leaving the manure out of the question, corn at the above prices, is the cheapest food, and, with the exception of bran, it is also the cheapest article to feed even after deducting the value of the manure. In regard to the profits of feeding sheep in winter, almost everything will depend on the judgment with which the sheep are purchased, and the skill with which they are fed. It will not pay to feed a poor sheep even if you get him for nothing. The most successful feeders in this section, where the business of fattening sheep in winter is carried on to a considerable extent, exercise the greatest care in selecting the sheep. We have known a farmer spend a month in picking up a flock of 200 sheep. His aim was to get sound, healthy wethers, three and four years old, well-formed, compact sheep, weighing 100 lbs. each. It is rare that such sheep can be found. It is not often that in a flock of a hundred common Merino sheep, a dozen can be selected that will meet the requirements. Our feeders like to get a car-load of about 200 sheep, so that when fat they can be put into a car and shipped through to Albany or New York. Such sheep in the spring are usually worth from $8 to $10 per head. These figures have a pleasant look, and they can be realized *provided* you get the right kind of sheep to start with.

Our sheep feeders have been to Canada this fall to buy sheep, but most of them returned without any, or with not more than half what they intended to buy. They all report that the price of good, long-wooled sheep there has "gone up wonderfully." They have now gone to Michigan to pick up large-framed, healthy Merinos. Last year nearly all the feeders that bought good Michigan Merino sheep early in the season, made money by fattening them. And yet it is true that later in the fall, say in November, sheep were cheaper than in September. The reason they did better than those who bought later was that they were able to make a better selection.

Mr. Bowles, of Hamilton Co., Ohio, writes me that he raised a large crop of clover hay this season [fortunate man], and proposes to fatten some sheep, but he adds: "You have the advantage of me in fattening sheep, as New-York market is so much better than Cincinnati. The butcher who buys my sheep and lambs says I bring the best sheep that are brought to market, yet the highest price I ever got for sheep was 7 cents per lb., gross, and for lambs, $4.33⅓ per head. With hogs, Cincinnati market is equal to New York, hence the advantage of feeding hogs over any other kind of stock. But hogs will not eat clover hay, and as I do not own a river bottom farm I cannot raise corn every year on the same land."——This is very true. We must raise clover or grass, in order to keep up the fertility of our farms; and the real question is, not whether hogs or sheep will pay the best, but whether it will pay better to make the clover into hay and feed it to sheep, returning the manure to the land, or whether it is better to plow it under directly for manure. I am inclined to think that Cincinnati or any other large city will pay a good price for *good* mutton, and that it will pay better to raise and feed good sheep than to plow under the clover. Good beef and mutton are very high, and the prospects are that they will be still higher. Mr. B. says he has one field of corn that will yield 90 bushels per acre of shelled corn, and his whole crop will average from 60 to 70 bushels. His crop of wheat 19½ bushels, oats (the best piece in the neighborhood), 30 bushels, barley 20 bushels. Hay two tons per acre. "It is a saying about here," he says, "that if a farmer has a good corn crop he can afford to lose all other crops."

Mr. Lawes has just thrashed his *twenty-seventh* crop of wheat from his experimental field. In 1844, the produce of the plot having no manure, was 15 bushels per acre. Since then, wheat has been taken *every year* on this plot without ma-

nure, and the yield in 1870 was exactly 15 bushels per acre. The plot which has received an annual dressing of 16 tons barn-yard manure yielded first year (1844), 22 bushels, and the last year (1870), 36½ bushels per acre. The plot receiving a liberal allowance of ammonia and other artificial manure, produced this year, 45½ bushels per acre. In 1863, which was one of the best wheat years ever known in England, the yield on the no-manure plot was 17¼ bushels per acre; with barn-yard manure, 44 bushels, and with artificial manures, over 55½ bushels per acre. In 1863, one of Mr. Lawes' fields of wheat in ordinary rotation, averaged 63 bushels per acre. This year his fields averaged 34, 44½, 39⅝, and 44¼ bushels per acre. The season has been remarkably dry and hot in England, but on highly manured land the yield is fully up to the average.

"It should be mentioned," says Mr. Lawes, "that the yields of 34 and 41½ bushels were both in the same field, the smaller produce being due to loss of plant, so much complained of over large wheat-growing districts this year."

In another field, the whole of which was uniformly manured, thirteen different varieties of wheat were sown, and the average results of five lots already thrashed is 48¾ bushels per acre, and more than 65½ lbs. per bushel; the weight of one variety reaching very nearly 67 lbs. per bushel. I am exceedingly glad that Mr. Lawes has undertaken to test different varieties of wheat, with his great experience in the art of experimenting we may look for the most trustworthy results.

One of my neighbors sowed Poland oats this season on the best field he had, and reports them "no better in yield or quality than common oats." For my part I never had faith enough to try them. In fact, I have very little faith in any improvement in farming until we drain our land, and work it thoroughly and repeatedly to kill weeds, and make all the manure we can.

At the N. Y. State Fair Trial of Implements, a cultivator was exhibited for killing thistles and other weeds, by shaving them off an inch or so below the surface of the ground. The exhibitor gave the judges and spectators an interesting lecture on how crops grow, the main idea of which was that the leaves were the lungs of the plant, and that by cutting off the leaves you prevented the plants from breathing and consequently killed them. For my part I should much prefer to tear the soil all to pieces and expose the roots again and again to our hot sun and dry atmosphere. This will not only kill the weeds, but will pulverize the soil at the same time, and develope a large amount of latent plant-food, especially on clayey land.

Mr. William Smith, of Woolston, in Buckinghamshire, an English farmer, well known as an earnest advocate for the use of the steam plow and cultivator on clay land, has recently published a statement to the effect that by thoroughly working the land he has grown on two fields fifteen crops in succession—wheat after beans, without a fallow; and that the yield of wheat this year is fully 40 bushels per acre. On two other fields of heavy soil he has grown wheat after wheat, and estimates the crop this year at "quite 40 bushels per acre." "The produce of these four fields under horse culture was," he says, "about 20 bushels per acre on an average of years." And notwithstanding the heavy and continued cropping under steam tillage, the land is so clean "that the total cost of working the seed-bed for each crop, from the smashing up of the previous stubble to the pulverization of the surface in readiness for the drill, is only 6*s.* 8*d.* ($1.62) per acre."

This is a good illustration of the benefits of thorough cultivation. On 14 acres of what Mr. Smith calls his "light land," but which we should call rather a heavy loam, he obtained in 1867, 43 bushels of wheat per acre; in 1868, 54 bushels of barley per acre; in 1869, 63 bushels of barley per acre, and in 1870, a crop of barley not yet thrashed, but estimated at over 63 bushels per acre. "This land," says Mr. Smith, "has had no cart manure for these four white crops—a little superphosphate for each crop, that is all." I suppose the bushel of barley referred to is 56 lbs., so that 63 bushels would be equal to 73½ of our bushels of 48 lbs. This is certainly a great yield, and speaks well for the system of "fall-fallowing" I have talked so much about.

Mr. James M. Budd, of Maryland, writes: "Please do not let the editors scare you off from your talks in regard to fallowing. I want to know 1st, if I plow my cornfield this fall, and cultivate and plow and keep it clean and mellow until next seeding time, whether I can raise, with the aid of 200 lbs. of guano and phosphate, any such crops as you do. My land is in fair order, grows great crops of straw, and for a red, clay soil does pretty well with corn, but the profits are small; and in fact take our peaches away and most of us would be poor. Since peaches pay and grain does not, our country is becoming a large peach orchard, and greatly to the detriment of improved farming; since with peaches to pick it is almost an impossibility to give proper attention to preparing land for wheat."

I cannot tell whether "fall-fallowing" would produce as good results on this land as it does on mine, but, unless it is naturally poor land, I do not see why it should not. My fall-fallowed corn this year, without manure of any kind, and without plowing in the spring, and with less hoeing and cultivating than usual, is by far the best crop I have ever raised on the farm. I hope Mr. Budd will try the system on his red, clay soil. I suppose in that climate he can plow pretty much all winter, and it would be an easy matter to make the land for corn as clean and mellow as a garden.

"2nd. I have five fields ranging from 30 to 40 acres. In following such a fallow with grass, would you seed down with clover alone? I should mow one year and pasture the next. I suppose your system would provide for manuring the sod."—If I fall-fallowed for corn, I should sow barley after the corn and seed it down with clover. If I used guano and phosphates, I should put them on the barley rather than on corn.

"3d. Are five divisions enough on a farm? I am determined to improve my land, and have done wonders with five fields and lime, guano, phosphates and clover, but the manure question bothers me. [Who does it not bother?] I do not make manure enough, and here is where it puzzles. I see that an English farmer will keep one sheep for each acre of land, which would give me 200 sheep, 15 head of cows, and 8 horses, all to be pastured on 30 or 40 acres of clover, which, with my hogs, is rather high! They would have to live on dirt before harvest."

It is quite true that an English farmer would easily keep that amount of stock, and besides have half of his land in grain every year. But his land must be rich and in a high state of cultivation; and besides he would buy a considerable amount of oil-cake, and would raise, by the aid of artificial manure, 40 or 50 acres of turnips or other roots every year, to be eaten off by sheep on the land where they grew. Comparatively little hay is raised. The straw, turnips, and oil-cake, enable him to winter a large amount of stock and make a big pile of manure.

I do not know that I understand what this five-field system is; but I suppose it is on a 200 acre farm of arable land—40 acres of corn, 40 acres barley or oats, 40 acres wheat, 40 acres clover hay, and 40 acres pasture. I should want to divide each field into two, and have only 20 acres of corn; after corn, barley or oats seeded with clover. Mow the clover for hay and for seed, and pasture until after harvest; then break it up and fall-fallow for barley; seed this down again with clover, and cut it for hay and seed; pasture the next year until June or July, then break it up and sow wheat, and seed this down with clover. Mow and pasture it two years, and again plant it to corn. In this way half the land is in clover and grass all the time, although no field lies in grass over two years.

"Will you be kind enough to enlarge upon these items, and let us know how you till your own farm and *how you make it pay.* These things are objects of interest to all the readers of Walks and Talks, and since an editor is public property, you must excuse *our* inquisitiveness."—The Deacon got off a good-natured joke at my expense the other day. A reader of the *Agriculturist* came to look at my farm, and afterwards called on the Deacon to see whether his corn was better than mine. After saying that he found my drilled corn well eared, etc., he asked: "What is his best paying crop?" "Well," said the Deacon, "you go to his house and they will ask you into a large room surrounded with shelves full of books, and in the middle of it a writing-desk covered with papers. *That* is the best paying field on the farm!" And it is a fact that the *Agriculturist* does pay me very liberally for writing. And some of my neighbors think if it was not for this that I could not make a living by farming. On this subject I shall have more to say in due time, giving all the facts and figures. The profits of even the best farming are not large; but I think I shall be able to show that *I have made farming pay.* My farm is certainly improving every year. The land is getting cleaner, richer, and mellower, and this is due to nothing but a little draining and to thorough cultivation.

Some of the operators of Corn Husking Machines at the State Trial of Implements at Utica disputed my assertion that, with good corn, an active man could husk 40 bushels of ears per day. Out West I suppose they can husk a good deal more than this. I would like to know what the facts are in regard to this matter. Last year I paid 6 cents per bushel of ears for husking corn. This year I paid only 5 cents, and the huskers could earn more in a day than they did last year, as the corn was riper and better. At the trial, Aspinwall's One-horse Machine husked the first bushel in 3 minutes and 10½ seconds; Russell's Two-horse Machine husked a bushel in 2 minutes 46 seconds, and Davidson's in 2 minutes 41 seconds. The best time, therefore, was less than 25 bushels per hour, and this required three men and two horses. It should be remarked, however, that the corn was not up to the average. The machines cost

from $100 to $150. With good corn I have no doubt the machines could husk from one-third to one-half faster. Still, even at that rate the saving in cost would not be very great; and in fact this is true of thrashing machines and many other labor-saving implements. Their real advantage consists in enabling us to do the work in a shorter time. It often happens that we do not get through husking until late in the fall, and the value of the stalks is reduced one-half from exposure to storms and from being stacked in poor condition.

There is one effect of the husking machines that requires investigation. They *crush the stalks;* and it remains to be ascertained whether this is an advantage or a detriment. My own impression is that the juices in the stalk would ferment and the sugar be converted into alcohol, and perhaps into vinegar. The machines, as yet, do not leave the stalks in such a state that they can be easily tied into bundles. They would have to be stacked loose as they come from the machine. I hope and believe that all these difficulties will be overcome, and that we shall soon have a machine that will do the work to perfection.

Nothing particularly new was brought out in the way of Potato Diggers. A great deal of time and money have been spent by scores of inventors, but as yet they have failed to give us anything more than machines that are, as the pomologists say of new fruits, "worthy of trial." Several of them dig the potatoes tolerably well, but all fail in not separating them from the soil.

The cheapest way to dig potatoes is to *raise a big crop.* It requires no more labor to dig an acre that yields 300 bushels than an acre that yields only 75 bushels. In fact, if, as is usually the case, the poor crop is smothered in weeds, it would cost more to dig it than the good crop. If it costs $15 per acre in both cases, the poor crop would cost 20 cents per bushel and the good crop only 5 cents per bushel to dig them; and now that the potato disease has almost entirely disappeared, there is no good reason why we should not manure our land for potatoes, and raise large crops. At any rate, we certainly can cultivate the land sufficiently to keep it clean, and this alone would partly lessen the expense of digging the crop. I have more faith in lessening the expense of raising potatoes by means of manure and good cultivation than I have from the use of potato planters and potato diggers—though we shall have both in due time.

IRRIGATING MEADOWS.—Some people appear to think that the chief object in irrigating grass land is to furnish water during the dry, hot weather of summer. In some arid climates this is the case; but as a general rule the benefits of irrigation are derived from water flowing on the land during the late fall, winter, and early spring months. And there are many places where side-hill meadows might be easily irrigated from streams which run only at these seasons of the year. We have seen a rude dam that, thrown across such a stream, directed the water over several acres of poor grass land and caused it to produce heavy crops of hay. Now is the time to attend to this matter. Build a dam high enough to cause the water to overflow the banks, and then plow out or dig a channel for the water at right angles from the stream. Dam up this channel and let the water overflow, running in a thin sheet over the land. This is a rude method of irrigation, and a very inadequate description of it; but still may induce some of our readers to avail themselves of the water which now runs uselessly down their hillsides at this season of the year and in the spring.

Fencing Flooded Fields.

Many solutions have been attempted of the problem how to enclose fields liable to be flooded and washed by freshets, bearing ice, floodwood, uprooted trees, etc., in a way to be effective, and yet not have the fences washed away as often as the water rises. Several plans have been suggested and carried out which have been more or less successful. The Connecticut River meadows are not fenced as a rule, except at certain points where the conformation of the headlands turns the ice and drift-wood away; for no ordinary fence could stand before the flood which brings down cakes of ice a foot or two in thickness, and perhaps covering an area of one or two square rods, or it may be square acres in extent. The up-stream sides of the trees are denuded of bark, scarred, and bruised. There are, however, many streams, the meadows along the banks of which are not swept by such impetuous floods, where ordinary fences are very unstable property.

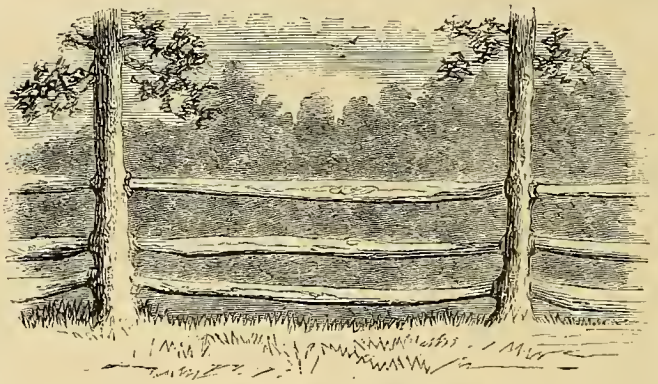


Fig. 1.—FENCE FOR FLOODED LANDS.

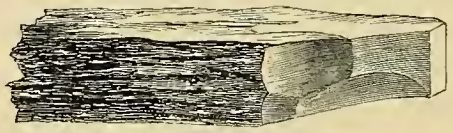


Fig. 2.—RAIL PROPERLY SHARPENED.

In these situations Soft Maple-trees will almost always grow vigorously. They afford shade, and finally fire-wood. They will bear a great deal of bruising and barking without either decaying at the heart, or being seriously damaged. This flooded land is ordinarily rich, and in four or five years from the time they are set out, they will be strong enough to mortise rails into, so as in time to make a fence like the one shown in fig. 1. The rails should be good ones, preferably of chestnut, and the ends not sharpened thin, but holding a good thickness, though sharpened somewhat like those of the common post-and-rail fence; fig. 2 represents the end of a rail properly sharpened. It is not necessary to use maples, for in all probability white willows, cotton-woods, certain kinds of poplar, all of which are very easy to transplant, would do equally well. The trees should be set 12 feet apart on the exact line, and stayed on the up-stream side by a stake driven as shown in fig. 3, to which the young tree is bound with straw at a hight of about 4 feet. This serves as a defence both against damage by wind and water, and to some extent, by cattle. The band must be removed in the course of the first summer, if the tree makes vigorous growth, and as soon as it is substantially rooted, it should be removed altogether. This fence, when well established, is a picturesque and beautiful object; and one forgets the disagreeable scars on the trunks in admiration of the beautiful rows of trees, that replace the unsightly posts, of the common post-and-rail fences, which are always rotting off, or heaving by frost; and unless newly set, are frequently becoming insecure. In cases where there is a liability to have the rails broken by flood-wood or ice, and yet where the stream is not very violent, a fence like the one shown in figure 4, has been found very good. Half the number of trees is set, and posts are placed between them. The fence panels are made of strips of pine or spruce wood of any convenient pattern, the principal top and bottom rails being of not less than $1\frac{1}{2}$-inch stuff. The ends of the panel rails next the trees rest in sockets of iron, (of the form shown enlarged in fig. 4, above the fence,) which are driven into the trees. The other ends are supported upon a cross-bar nailed upon the posts and held in position by cleats nailed on, or by buttons. One of each pair of panels is chained to the tree which supports it, and the other is chained to its fellow. These chains may be made very cheaply of stout iron wire. When the freshet comes the fence is raised up and floats free from the post; and of course this allows the ends attached to the trees to draw out of the sockets, and each pair of panels floats, fastened to the tree to which it is chained, as shown in figure 5. The fence, if well put together, will withstand very hard usage from swift currents, floating logs, etc. The use of carriage bolts instead of nails at the four corners of each panel, is advisable. Breachy cattle if they learn how, may prove troublesome if placed in a lot inclosed by this fence; but it has such a substantial look and is so firm unless lifted up bodily, that no trouble will ordinarily be experienced. Should the necessity arise of having it absolutely secure, movable wooden pins may easily be placed in the crossbar of the post, and the sockets in the trees closed above so that the rails could not be lifted out. In case of a rise of water, it would be necessary

Fig. 3.—YOUNG TREE STAKED.

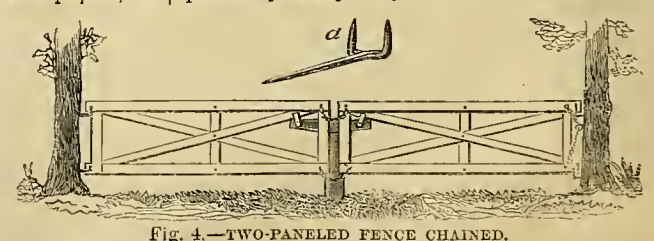


Fig. 4.—TWO-PANELED FENCE CHAINED.

to go along the fence and remove the pins before the flood had reached too high a stage. From the engraving it will be understood that the posts stand upon the up-stream side of the fence, and as every thing must have its weak-

Fig. 5.—FENCE PANELS FLOATING.

est point, it would be well to see to it that the parts which would break first in case of a sudden rise of water would be the cleats or buttons which hold the fence to the posts.

LOOK TO THE WINTER WHEAT.—It is rare to find a field of winter wheat on which there are not low spots where the water lies on the surface. Much might have been done to prevent this by "furrowing out" as soon as the grain was sown. Now it must be done with the hoe and spade. Some wheat may be destroyed by the operation, but not one-tenth of what will be "winter-killed" if the water is allowed to remain on the land. Let not a moment be lost in attending to this matter. It is by no means a substitute for underdraining, but it is far better than nothing. If the land is low, commence to dig where there is an outlet and make the water follow you up into the land. You will be astonished to find how much fall there is, even on land that is apparently on a dead level. Try it and you will save wheat enough to buy a first-class agricultural library.

A Family Filter—Home-made.

Pure water for family use is almost beyond value. The past two summers have tried wells sorely, and many have been found wanting. Some have been so low that the water became stagnant, and multitudes of farmers would willingly have used swamp water if they had known how to filter and purify it. Filtering, as generally viewed, is a purely mechanical operation, but it is *not* so of necessity. When finely-broken up charcoal is used in the filter, marked chemical effects follow; color is discharged, odors removed, and a tendency of substances in the water to decompose is arrested. For this reason charcoal is a very important ingredient in filters for drinking-water. There are many ways of arranging a filter, and the accompanying plan is suggested as of very general application. A water-tight barrel, or half-barrel, is obtained, and one head taken out uninjured. Two tinned iron pipes are fitted into the head which remains, each extending a few inches above the top of the head; one enters the barrel a few inches, and one of them goes nearly through it. Caps of tinned wire gauze are made to go over the ends of the pipes which are inside the barrel, and these are bound on with wire. The keg is then set with the open end up, and filled thus: 1st, several inches of clean gravel; 2d, 4 or 5 inches of well-washed, fine sand; 3d, about 12 inches of freshly heated and pounded charcoal, sifted, and in about as large pieces as grains of wheat; 4th, 4 or 5 inches of sand like that before used, and finally several inches of gravel—the whole well packed and settled by water, layer by layer, to fill the keg full. Then put in the head and make all tight. The exterior ends of the pipes should have screws cut upon them; then a coupling with a faucet may be attached to one, and a bigger piece of pipe, in which a funnel will go, to the other. Pour in water until the barrel is full; then, for every quart poured in, an equal quantity will run out, perfectly filtered. When an accumulation of dirt is suspected near the end of the pipe into which the water is poured, the faucet and funnel pipe may be shifted each to the other pipe, and most of the dirt will be washed out; after which the original arrangement may be restored. Such a filter will be efficient in constant use four to six months.

FAMILY FILTER.

Artificial Egg-Hatching.

One of our subscribers on the Pacific Slope wants to make an *incubator*. We believe these things may be very useful for some people, but we hold also that no incubator will do the work of egg-hatching nearly so well as a good old hen. For this reason we counsel our "subscriber" to take with us a lesson from Biddy. When she has her own way she "steals" her nest, and with barely the thickness of a dry leaf or two for the eggs to rest upon, lays her eggs upon the ground. Ducks lay directly on the ground and cover the nests with leaves. When brooded of course the eggs are warmed from above, having the upper surfaces in contact, or nearly in contact, with the bare body of the hen; and in the case of the duck, imbedded in her downy feathers but not in contact with her body. The

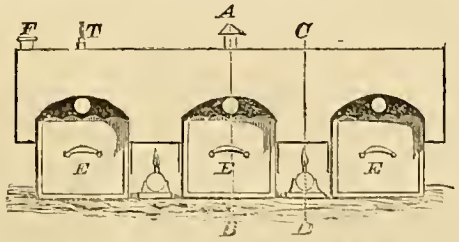


Fig. 1.—FRONT VIEW OF INCUBATOR.

eggs are subjected to different degrees of temperature according to their situation in the nest; those near the outside not being nearly so warm as those in closer contact with the source of heat. The old bird when she leaves the nest comes home wet with dew; the hen is fresh from her dust bath, and the duck from the pond. The eggs are quite cool but not cold; she rearranges her eggs more or less, settles herself with her wet feathers upon them, and warms them up again. Then the eggs receive moisture from the earth, for the soil is always somewhat moist, and from the cause described. They are besides shifted, rolled over, sometimes warm and sometimes cool; in fact they may become

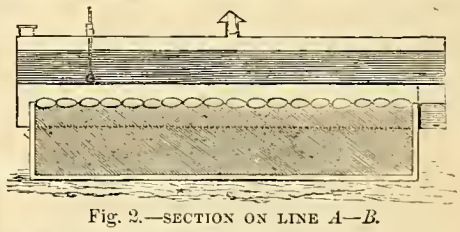


Fig. 2.—SECTION ON LINE *A—B*.

stone cold without losing their vitality. The writer has known duck eggs to hatch in common summer weather, when deserted the third week, for not less then 12 and perhaps 24 hours.

The yolk of an egg is enclosed in a membrane attached to which, towards each end of the egg, are masses of twisted membranous albumen which are commonly called the "tread" under an entirely mistaken notion. Physiologists term them *chalazæ* which is the only name we know. They serve the important purpose of keeping

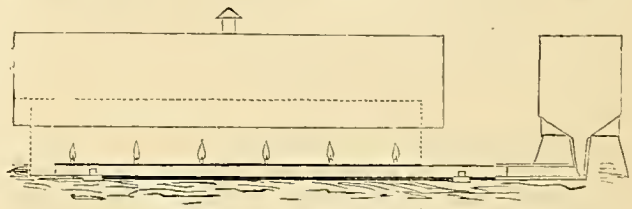


Fig. 3.—SECTION ON LINE *C—D*.

the yolk from floating too close to the shell, and of keeping the same part of the yolk uppermost. This part of the yolk (see fig. 5) if examined will be found to contain a small round spot differing in color from the surrounding portion. This is the seat of vitality, and from this point that little net-work of arteries goes out which is so conspicuous after the first week of brooding. (Fig. 6.) It is the "germinative vesicle," and within it is the "germinative spot." In natural incubation this is always exposed to the most direct action of the heat; it is always uppermost, which ever way the egg is laid, and the heat comes from above. There is a difference of several degrees in the temperature between the upper and under part of the egg. The more closely we imitate these conditions, the greater success we may hope for in artificial incubation. The talk about the different effects produced by animal heat and by the heat of combustion is all nonsense. There is, of course, a difference between the influence of heated, moist air and heated, dry air; between heat applied above and that below the egg; between a continuous heat for three weeks and a temperature subject to daily variation.

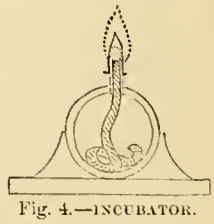


Fig. 4.—INCUBATOR.

Those who have made incubators have kept these principles more or less in view. It has been found that, though the heat be continuous, the eggs will some of them hatch; though applied below, the same result follows; that a dry heat is not fatal to all; and that the heat may be several degrees higher and lower than the desirable point (102°) without being fatal to all; but the statement made above has also

been verified; viz., success in artificial incubation depends upon a close imitation of nature.

In making an incubator, economy of heat is an important matter; and we must consider also ease of management. The writer, in examining into the structure of some of the most approved incubators, has hit upon a simple plan which avoids the patented features of those he is familiar with and will probably be entirely efficient.

A front view of this is shown in fig. 3. *E, E, E*, are three boxes of wood, painted or pitched on the inside and painted on the outside; filled with moist earth and having the eggs partly

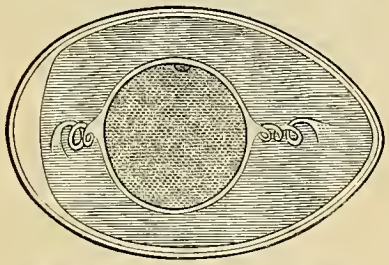


Fig. 5.—STRUCTURE OF THE EGG.

imbedded in the earth. Over these boxes, fitting saddle-wise upon each of them, is a heater, preferably made of copper or brass. The two spaces between the boxes are about 4 inches wide, and here the lamps are placed for heating. Little screens are soldered upon each side of the portion exposed directly to the flames, to shield the boxes from the direct influence of the lamps. By raising either end of the heater a very little, one of the end boxes, or the middle one may be withdrawn at pleasure. In the top of the heater there is a ventilating tube always open, a place for filling and emptying, and a tube for receiving a thermometer in a cork. When the boxes are in place there is a free space over the eggs in front, and a round ventilating hole at the rear, as shown in fig. 1, and the section through the line *A, B.* (fig. 2.)

This is sufficient provision for ventilation; indeed, more than is needed, for the front opening would probably need to be loosely filled with wool or cotton. We suggest the idea of having several small flames or lamps rather than one, as being much more easily regulated, and less liable to cause sudden changes of temperature from accidents. The form is immaterial. The one shown in figs. 3 and 4, would doubtless work well. It consists of a one-inch gas pipe, drilled to take several wick tubes, and communicating with a fountain which keeps it constantly full to the same level, on the well-known principle employed in

Fig. 6.—THE EGG ABOUT THE SIXTH DAY.

the German student-lamps. Good sperm oil or the best kerosene should be used. The eggs ought to be exposed to a temperature of about 102°. In most incubators they are in contact with warm air simply, which is exceedingly sensitive to changes, and difficult to keep up to the proper point without having the water in the heater too hot. We propose to avoid this trouble and imitate nature still more closely, by providing little silk bags loosely filled with fine, copper turnings, to lie upon the eggs and to touch the heater also. The copper will remain of nearly equal temperature all over, and will bring the heat more tangibly in contact with the top of the eggs than can be effected by sand or in any way we know of.

Outlet for an Ice-Pond.

Considering all the trouble we had last winter to get ice, and the prices we have had to pay, we may well look out beforehand, that our arrangements are made for securing a stock next winter. The coldest water lies at the bottom of a pond in summer; not so in winter. Then the warmest is at the bottom, for as soon as the temperature of the pond falls below 40°, the coldest water stays on the surface, and the water below remains at 40°, until it is either warmer, or becomes colder through the freezing of that above. Warren Leland, of Highland Farms, Westchester Co., N. Y., reports, that he doubled the thickness of his ice, by having the outlet made at the bottom instead of at the top, thus drawing off the warmest water instead of the coldest. He sent this statement to the papers last year, too late to be of any use to our readers. It is so in accordance with the facts above mentioned, that we do not doubt the correctness of Mr. L.'s conclusions.—He says: "The usual way of constructing outlets of ice-ponds is by an overflow at the surface. In this way the top of the water is always in motion; and after ice has formed, the warm water from springs, and underdrain flowing along its under surface, prevents its thickening. To obviate these difficulties, the outlet should be from the bottom of the pond—leaving the surface undisturbed to cool and freeze more readily, by the cold air and action of the ice. This style of outlet also tends to keep the water free from sediment. It is easily constructed, by having an iron or wooden tube leading directly from the bottom of the pond, or by a flume, arranged to draw from the bottom. Having in this way doubled the thickness of ice on my pond, I wish through your columns to give my brother farmers the benefit of my experience."

The Field-Roller.

It is rare to find a field-roller upon the farm and yet upon many farms it would pay for itself every season. The implement as turned out from the factory is rather expensive, costing about 80 dollars. This is a large sum to pay for an article most farmers have never used and never felt the need of. The necessity of it is not so obvious as that of the mowing machine, and yet it has its place in the routine of our labors. It is the best implement for making a smooth surface for the meadow; a matter of great importance for the mowing machine. It should follow the bush harrow always in the spring, when the land is laid down to grass. And if the land is wet, and the grass roots have been thrown out by frost, the roller will press many of them back again and make a smooth surface. It is also of great service in breaking hard lumps, when the land is plowed for hoed crops, or for spring or winter grain. These lumps are a severe obstacle to the progress of crops in the soil, and whatever aliment they contain is lost to the growing crop. The roller is a good pulverizer. Then in a dry time it greatly assists in the germination of seeds. Wheat, rye, and other grains come up much better for the pressure of the soil around them. Then the labor of cultivation is economized by having the field laid as smoothly as possible. You can see the rows very distinctly, and begin the cultivation sooner, and bring the cultivator much nearer the growing plants, leaving much less labor for the hoe. This makes a large saving in the item of labor. It is of still greater service in disposing of the small stones in the gravelly loams on many fields; it will bring all of these on a level with the surface and put them below the cut of the mowing machine. This saves the disagreeable labor of picking stones, which has probably weaned more boys from the farm than any other work. We have found so great advantage from the use of the roller, that we should not know how to dispense with it. If a man has capital, let him by all means get the best pattern, with cast-iron cylinders. If not, he can make a wooden roller that will do good work and last many years, with very little outlay of money. From a large tree, three feet through at the but, cut off a section of 8 feet, make it as near cylindrical in shape as possible, drive in two large iron pins exactly in the center, hang it in a frame and put on a pole for the team. A roller made of hewn stone is still better, for it is heavier and more durable. Get a roller if you have to make it with your own hands.

How much Hay will Sheep eat in Winter?

Harry Taylor asks "how much clover hay will a sheep eat per day?" The general answer is from $2^1/_2$ to three per cent of live weight. A flock of full-grown Merino sheep averaging 80 lbs., could probably be wintered on 2 lbs. of hay per head per day. This would keep them in a healthy condition, but it is not likely that they would increase in weight. The food would all be used to sustain the vital functions, and for the growth of wool and secretion of yolk. Full-grown English sheep, averaging, say 150 lbs., would probably eat 4 lbs. of hay per day and would increase in weight 1 lb. per week. In the case of ewes in lamb, the increase would be in the growth of the fœtus and in fat and other material stored up for the use of the lamb after birth. The quantity and quality of the milk are influenced very much by the quantity and quality of the food supplied during the period of gestation. The long-wooled, or South-Down, ewes should have all the clover hay they will eat during the winter; or if a portion of straw is fed instead of hay, the difference in the amount of nutriment should be made up by allowing a little grain; say $1^1/_2$ lb. of hay, $1^1/_2$ lb. straw and 1 lb. oats, peas, corn, or oil-cake. This would keep such sheep in splendid condition, and insure strong, healthy lambs and an abundance of milk. Last spring we had a Cotswold lamb that weighed $12^1/_2$ lbs. the day it was born and in two weeks from that day it weighed 25 lbs. At six months old it weighed 120 lbs.; of course breeding had something to do with it; but this rapid growth of a young lamb is caused by a liberal supply of rich milk; and this is obtained not only by feeding the ewe liberally while she is suckling the lamb, but also by feeding her liberally during the period of gestation, thereby enabling her to store up food for the use of her lamb or lambs. Young, growing, Merino sheep will probably eat 3 lbs. of clover hay per day for every 100 lbs. of live weight; that is to say, a lot of Merino lambs eight or nine months old and averaging 50 lbs., would eat $1^1/_2$ lb. of clover hay per day and gain from nothing to half a pound each, per week. On the other hand, a lot of well-bred

long-wooled sheep eight or nine months old, averaging 100 lbs., would eat 3 lbs. of clover hay per day and 1 lb. of grain, and gain from two to three lbs. each, per week. If such sheep were to be kept for breeding purposes it would not in all cases be desirable to feed so high; and straw and bran might replace a portion of the hay and grain; say 2 lbs. hay, 1 lb. straw, and 1 lb. bran per day, or 1½ lb. hay, 1½ lb. straw, ½ lb. bran, and ½ lb. grain per head per day. Such sheep should gain from one to two lbs. per week. Three lbs. of clover hay per day alone would keep them through the winter, but they would weigh little or no more in the spring than in the fall, and this is wretched management with mutton sheep. If young sheep are to be kept through the winter without gaining anything, better keep Merino sheep. They will stand such treatment better than well-bred Cotswolds, Leicesters or South-Downs.

Mr. Taylor also asks: "Will it do to feed clover hay alone to ewes up to within a week or two of lambing and then feed bran and hay?" It is not usually desirable to change the food at this period. Better commence to feed bran or a little grain six weeks or two months before lambing. The great secret in the successful management of sheep, as of other animals, is in furnishing a steady supply of food. To feed liberally at one period and half-starve the animals at another is unwise. If the breeding ewes are getting too fat, reduce the *quality* of the food gradually; or if it is found that they are not doing well raise the quality of the food gradually, not suddenly. And in all cases the sheep should have all the food they will eat of some kind. If the amount of hay is restricted let them have all the straw in the racks they will eat, and let it be supplied to them regularly; and when they have picked out all they will eat, scatter the remainder about the yards as litter.

Stallions for Common Labor.

An article on page 337 (September), which calls attention to the use of stallions as horses of all work, has attracted the attention of many horse breeders, and elicited a communication from Mr. Joel Henry Wells, publisher of the Chicago Commercial Express, enclosing an article based upon the results of his experience, which we copy below, and most heartily second his suggestion for the gathering of facts to substantiate, by direct testimony, our views upon this subject. We shall be glad to hear from our readers of their experience whether it is for, or against, the use of stallions. Mr. Wells writes:

"I have had six stallions in my family stables during the last five years, and have three in family use now, for carriage and saddle. They are of my own raising and training, and we like them better than any geldings we have ever had. They are kind, quiet, faithful, intelligent in a superior degree. My experience is only that of hundreds whose management in this respect has been similar. Cannot we do more than merely suggest—can we not gather detailed facts for more convincing generalization on this topic?"—The following is the article referred to from the Express:

Any one observant of the value and usefulness of horses during the last ten or fifteen years, must have noticed among owners and drivers, a change in regard to the general opinion about the employment of stallions in ordinary work, in harness or under the saddle, for business or for pleasure, which is manifested in the increased number so employed. The old prevailing opinion was that stallions were really fit for one purpose, and unless a colt showed promise as a stock progenitor, he was sure to be made a gelding in his second summer. But the fact that stallions when properly trained and prudently handled have proved valuable in harness, superior in all respects to geldings of the same general qualities, is becoming more known.

The popular belief has been and still is to a large extent that stallions in harness in ordinary work are both disagreeable and dangerous; but better knowledge proves that if they are so, it is the result of injudicious treatment, or the development of a vicious disposition. A stallion is one of the most intelligent animals in existence, and may be taught any thing that his master desires within the range of animal intellect. Taken in training at two or three years of age, before disagreeable or vicious habits are acquired, he need never make any such manifestations, and will not under proper care, unless he comes of a very bad race; for dispositions are transmitted by horses as well as by men.

It is well known that the Percheron stallions in work in France are handled with ease and safety by women and children. Kindness and affection belong to many races of horses, and are developed in stallions more than in either mares or geldings. Nearly all the great feats of endurance have been performed by stallions. The best trick horses of the arena have been stallions, in fact it is next to impossible to teach a gelding tricks involving superior intelligence. In the large cities teams of stallions are found to be able to do more work and show less fatigue than geldings, and to be equally quiet and safe in the street. Some of the handsomest single horses and teams driven for pleasure in the parks and on the avenues are stallions; no mare or gelding, other things being equal, ever shows the fine coat, the proud style, the splendid action, of the stallion.

It is a disgrace to the statute-book of several States, that they make it penal for farmers to allow a colt to run the second summer in pasture unless as a gelding. The best development of the young animal is thus prevented. Young stallions will remain perfectly quiet in pasture with fillies or with mares that have been stinted, with the same fence that confines other horses. They may be put to light work at three years, always remembering that a stallion or a mare at three is more capable of work than a gelding at four years. With proper care in handling as colts, their habits may be made perfectly secure, and when they have reached five or six years, their superior intelligence, spirit, and endurance will amply repay the little additional trouble.

Let the stock raiser reflect for a moment how many valuable stock-getters have been lost to the breeder by castration before the qualities of the animal had been developed. Dexter as a gelding is worth over $50,000—at least that money cannot buy him—and who can say what price he would bring but for the blunder that destroyed his sexual organization. Some persons who have thought much on this subject have concluded that a stallion will not do well in work unless the sexual instinct is gratified by reproduction, that he will become ugly, violent and intractable; so he may, if pampered by high living and indolence, or teased by foolish or villainous keepers, but with proper feeding, sensible handling, and regular work, his nervous energies will be expended in his muscular efforts, and the balance of the system be preserved.

Only vicious, incorrigible brutes should be subjected to an operation which is a destruction of their finest animal qualities, and a disgrace to human civilization.

KEEP THE SMALL POTATOES UNTIL SPRING.—Farmers frequently feed their small potatoes to fattening pigs in the fall. It would be much better to keep them until spring, and then cook them, mix them with a little meal and feed them to suckling sows and young pigs. In the spring, before the clover is ready to turn into, we are generally short of succulent food, whereas in the autumn we have apples, pumpkins, cabbage leaves, and a variety of vegetables that will not keep until spring. The value of potatoes as food for stock does not lie so much in the mere nutriment they contain as in their giving tone to the stomach; and they will prove much more useful when fed out to young pigs and breeding sows in the spring, as is usual, than when fed to fattening pigs in the fall.

Rats and Mice—Vermin-proof Walls.

BY A. B. ALLEN, TOM'S RIVER N. J.

[The greatest annoyance from rats and mice is usually felt in the autumn, and the following interesting letter will doubtless be read with appreciation, and remembered with profit by many of our readers.—ED.]

Constant complaints are made through the press of the increase of rats and mice throughout the country. The only way to get rid of them *effectually* is to so construct our houses, barns, and other buildings, that they *cannot harbor* them. To insure this, cellar bottoms should be cemented, and the walls also, unless they are solidly laid up with brick or stone and mortar. Every basement of a house where the sleepers are close to the ground should be filled up between these to a level with their tops with cement or grouting, and the boards or plank then nailed on, leaving not a hair's breadth, if possible, between the grouting and the floor. Neither rats nor mice can then get under. We built a set of stables in this way fifteen years ago, and no vermin have ever found harbor under the floor nor have gnawed through it. Sometimes they have got in through a door or window, but by removing any thing standing against the walls, behind which they have found temporary shelter, so that a small terrier dog could pass around, he immediately caught them, and there was at once an end put to the nuisance.

If the walls of a house be of wood, before lathing and plastering inside, lay a coat of mortar and small stones or cement four or five inches thick, level with the floor of each story, between the studs and flush with them, or what, perhaps, would be better, fit in pieces of two-inch, hemlock plank. Neither rat nor mouse can gnaw through hemlock, for it immediately fills his mouth with sharp slivers on attempting it. Then if they ever get into the cellar or basement through a door or window, they cannot ascend to the upper stories and find shelter and breeding places between the lathing and siding.

If the walls be made of brick, they ought to be built up hollow; the plaster inside can then be laid directly on to them, which leaves no harbor for vermin. If the walls be solid, as is generally the case, they must be furred out, lathed and plastered; but before doing this, fill up the space between the mop-board and wall with cement or strips of hemlock, and this will keep out mice. The space here, as houses are commonly built, is not wide enough to admit rats.

Rats and mice are destroying millions of property every year among us, and besides are very filthy and loathsome. But yet we continue to go on and make nearly every building we erect a *perfect warren*, shelter, and home for them.

Hunting in the Far West.

The destruction of the larger kinds of game, already alarmingly rapid, is likely to be accelerated by the several railroads opened or being opened in the far West. It will not be long before the buffalo will be as rare upon the great ranges, as are deer in our older settled States. Many parties equipped with destructive weapons go out for the purpose of slaughtering buffalo,

for no other object than their own amusement. Mr. Cary brings us sketches of hunting scenes taken during his Western sojourn, which show some of the methods of hunting followed by the Indians. The primitive manner in which the savage obtains the game that is necessary to his subsistence, and the ease with which the white man is enabled to carry out his work of destruction, are in marked contrast. The white hunter invades the game country by railroad, mounts a fleet horse, and with revolver and breech-loader follows the sport until fatigue checks the slaughter. The Indian, on the other hand, is obliged to resort to various devices and strategies to allow him to come within a distance, which will allow his short-range weapons to be effective. No wonder that the Indian regards the presence of the white man upon his hunting grounds with jealousy. The illustrations need but little explanation. One manner of approaching the buffalo is shown in figure 1. The coyotes, or prairie wolves, which prowl about upon the edges of the herd in search of a carcass, are but little noticed by the buffalo. The Indians take advantage of this, and, throwing wolf skins over their bodies in such a manner as to disguise themselves, they approach upon their hands and knees and gradually encircle a detached portion of the herd, until they come within arrow shot, when an attack is made. When buffalo are found in a stream, they fall an easy prey to the Indians, who, in this case, show skill and daring by spearing them from their canoes. Some of the more venturesome of the young braves often enter the water (fig. 2) armed only with a knife, and attack the animals, which have the rapidity of their movements much impeded by the water. In fig. 3 we have a foot race, which a young warrior, who wishes to show his fleetness and endurance, has started with a buffalo that had approached near camp. Contests of this kind are of frequent occurrence. The ingenious strategy employed in approaching the elk is shown in fig. 4. The uncouth animal in the foreground is made up of two Indians covered by an elk skin. The skin is dressed with the horns on, and the head is held in the position the animal assumes when feeding. The forward

Fig. 1.—INDIANS, DISGUISED AS WOLVES, HUNTING BUFFALOES.

Fig. 2.—ATTACKING BUFFALOES IN A STREAM.

Fig. 3.—TRIAL OF SPEED BETWEEN A BUFFALO AND AN INDIAN.

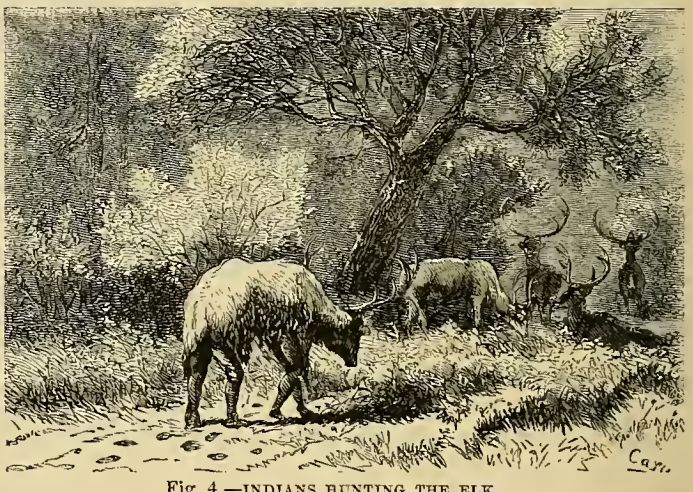


Fig. 4.—INDIANS HUNTING THE ELK.

Fig. 5.—MOOSE-HUNTING ON THE SNOW.

Fig. 6.—DEER-SHOOTING ON THE LAKE.

Indian has a peep-hole in the shoulders of the skin, and the rear one has a look-out place in the flank, from which he can shoot his arrows. By this ruse several animals of a herd are killed before their suspicions are aroused. Fig. 5 illustrates moose-hunting in winter; here the savage upon snow-shoes is able to overtake the usually fleet animal, which can now make but slow progress, as its small hoofs sink through the crusted snow at every step. In fig. 6 is given a manner of deer hunting, practised by both whites and Indians. The deer, being pursued, takes to the water to escape. Though a good swimmer, it is no match for a good oarsman. The animal being overtaken, one of the hunters catches it by the tail and holds it, while the other dispatches it by a bullet through the head. The holding is necessary, otherwise the deer would sink upon being shot. We have never participated in this kind of hunting without feeling that the deer had not a fair chance.

THE CHASTE-TREE.—(*Vitex Agnus-castus.*)

The Chaste-Tree.—(*Vitex Agnus-castus.*)

If our readers share our love for old plants, we present in the Chaste-tree one long enough known to satisfy the warmest lover of antiquity in plants. It has been in cultivation in England for two hundred years, and its use in the festivals of the ancient Greeks is mentioned by Pliny. Aside from its historical associations the shrub,—for it is not a tree—has in itself, much to commend it. The foliage is pleasing, and its flowers have the merit of appearing late in the season when there are but few shrubs in bloom. Our plant flowered this season late in September, but in less favorable seasons it does not bloom until October. The flowers are borne in interrupted, slender spikes at the ends of the shoots of the present season's growth. They are purplish-blue, and have a rather agreeable fragrance, while the odor of the leaves is not very pleasant. The engraving shows the flowers and leaves reduced about one-half in size. The fruit is a small four-celled nut, which is rather peppery, and to which, in former times, various medical virtues were attributed, but in common with many similar things they have long ago passed out of use. The Chaste-tree is a native of the shores of the Mediterranean, and is with us somewhat tender, and the shoots are partly winter-killed, but not enough to injure the vitality of the plant. Mr. Meehan informed us that his plants, in the more favorable climate of Philadelphia, were cut back in a similar manner. The shrub belongs to the Verbena family, of which it is the only woody representative that is hardy—or rather half-hardy, in our climate. It is propagated by cuttings and by layers. There are several other species of Vitex, but they are greenhouse or hot-house plants.

THE DOUBLE-FLOWERING BLACKBERRY.

A Double-flowering Blackberry.

The common Blackberry, or Bramble of Europe, *Rubus fruticosus*, is a strong-growing, erect species, with hooked prickles, and bears a small fruit which is but little prized. It has given rise to several varieties, differing in their foliage, and the color of their fruit, and two, in which the flowers are double. The double white and pink varieties are very old, and we suppose that on this account they are seldom seen in gardens. Mr. Wm. Chorlton, of Staten Island, a lover of fine plants, whether new or old, last spring brought us specimens, which were so pleasing that we had the engraving made from them which we here present. The specimens were completely covered with blossoms which looked like miniature roses. The double brambles are valued in England, as they will thrive where more delicate, ornamental plants cannot be made to grow; and they make themselves at home at the roots of trees, and in rocky places, and are used to train against walls, etc. They have one disadvantage for some ornamental purposes; like our native species, the stem is biennial, and the old wood must be removed each year. Still, in many situations, this would be of little matter. We do not know if it is as much disposed to spread as our species. It is altogether a very pleasing shrub, and we are glad that Mr. Chorlton has brought it over and given us an opportunity to make it better known.

A variety of this species, with divided leaves, is the *Rubus laciniatus* of the catalogues, and sometimes cultivated under the name of Cut-leaved and Parsley-leaved Blackberry. Another double variety of Blackberry is the well-known Bridal Rose, which is *Rubus rosæfolius*, with double flowers. It is a greenhouse species, and comes from Mauritius. Specimens of Wilson's Early Blackberry have sometimes shown a tendency to produce double flowers.

Plants for the Decoration of Agricultural Fairs.

BY PETER HENDERSON.

I have this fall been written to by over a dozen managers and others interested in agricultural fairs, asking if plants suitable for decorating the horticultural department could not be sent to their exhibitions. Unless the distance is very short, it would not be practicable to send those plants best suited for the purpose. The Coleuses, Caladiums, Cannas, and such ornamental-leaved plants as are of tropical origin, being of large size, are easily injured by drying winds and by chafing against each other, and could not be shipped to any distance without their beauty being seriously marred. The growing of plants for decorative purposes is exceedingly simple, and there is no reason why the most unpretend-

ing of our agricultural fairs, from Maine to Georgia, might not have a fine display of gorgeous foliage at their autumn fairs. I know that in some of the Northern States the frost might cut them off if not protected at night, but a barn or shed, in the absence of a greenhouse, would be all the protection required. I have said that the growing of these plants is simple; they are no more difficult to grow than tomato or egg-plants, and should be planted out, in any part of the country, just at the date that it is safe to plant out these. Procure, if possible, the varieties from the nearest florist; for though we ship these plants thousands of miles both by express and by mail, yet they always suffer more or less, and the nearer at hand they can be procured the better. The plants of these kinds, when obtained from the florist, have been grown in small flower pots, and usually average five or six inches in hight. When procured, which should not be until all danger of frost is past, flower pots or boxes of about the capacity of a cubic foot, should be provided, filled with a rich compost of two parts soil and one of rotted manure, compressed moderately firm in the box or pot, and the plant to be grown as an ornamental specimen set in the center. The box or flower pot should then be planted, or as we gardeners call it, "plunged," so that its rim will be level with the general surface of the ground. After the plants have been set out, or "plunged" in the ground, if in pots, these should be turned around every two or three weeks during the season to prevent the roots passing through the bottom of the pot and spreading in the ground; but there will be no need of doing this if the hole at the bottom of the flower pot is stopped so tight before putting in the soil that the roots can not get through. If the weather at any time continues excessively dry, they would be benefited by a good soaking with water once a week or so, but usually this will not be necessary. Care must be taken that the ground in which they are plunged is level, free from shade, and that all weeds growing in the flower pots or between them, be taken out. *Coleuses* should be placed equidistant, three feet, from each other; planted thus by June first, then no more than six inches in hight, by October first, they will have formed plants three feet in diameter and three or four feet in hight. *Caladium esculentum*, the best of its class for decorative purpose, should be planted exactly in the same manner, and by fall will present a magnificent appearance; when well grown, its immense shield-like leaves often measure eighteen inches across. The Cannas grow taller, but occupy less breadth, and may be planted at two feet apart; they present a great variety of graceful foliage, tinted in many shades of green and crimson. But the Colenses present the greatest variety of brilliant foliage. Some of them being almost black, others velvet-like maroon (as in the well-known *C. Verschaffeltii*), then again as in *C. laciniata*, we have a golden shade delicately penciled with carmine. But the newer, Golden Coleuses introduced last spring, present the greatest variety of markings, and are of colors of foliage so uncommon that they have created more sensation among the lovers of plants than any thing introduced in many years. The variety called "Setting Sun," which we introduced last year, is a good type of this class, but it has this year been much improved upon, and there are now varieties far surpassing it in brilliancy; one of the most striking of these, named "Model," has the ground-color of the leaf a crimson shade of orange, margined with a clear fringe of golden yellow. Again we have others, as the "Monarch," having the ground-color purple, and the fringe or margin, orange; and when we add, that, together with this striking richness and variety of coloring, the texture of the leaf resembles that of velvet in appearance, the effect of symmetrically grown plants, three or four feet in diameter, may be imagined. Another genus of plants entirely different from any of the preceding, is the Achyranthes, of which we have several kinds, ranging in color from purplish-carmine, to the deepest shade of blood-red or purplish-crimson; they grow about two feet in breadth and hight, and form a distinct contrast in a collection of ornamental-leaved plants.

The Cabbage Pest.

Our cabbage growers are in sad trouble. An insect enemy has appeared which has in many places destroyed the whole crop, and in others seriously damaged it. To those who grow only a few cabbages for family use, this may not appear a matter of great importance, but where, as is sometimes the case, a prospective income of $5,000 or more is suddenly cut off, the matter becomes serious. The present pest is the *Picris rapa*; it is a comparatively new comer, having been imported from Europe by the way of Canada. The perfect insect is a small butterfly with white wings. In the male (fig. 1) there is a black blotch on the outer corner of the front wings, and one spot above and two on the under surface, the lower spot matching with another on the hind wings; the female (fig. 2) has a similar blotch on the edge of the wings, and two spots on the front wings, and one on the hind wings. In both sexes there is considerable difference in the depth of the color of the spots, as well as in the shading of the wings near the body with black. The caterpillar (fig. 3) is an inch and a half long, green, and when fully developed, with a yellow stripe down the back and a row of yellow spots upon each side. It is a voracious feeder, and after it has done all the mischief it can, it seeks a sheltered place and enters the chrysalis state (fig. 4) from which in seven or eight days the perfect insect emerges to lay eggs for another crop. The caterpillar is most destructive, eating large holes in the leaves, working in among those of the just forming head, and leaving them a mass of shreds defiled by its copious excrement. Every butterfly must be killed that it is possible to capture, but in some places they have appeared in such swarms that the task would be a vain one. In a recent conversation with Mr. Quinn, whose large plantations were threatened with destruction, he informed us that he has found carbolic powder, superphosphate, and lime together, to destroy them. The carbolic powder appears to be sawdust, impregnated with carbolic acid. Salt has been recommended, but Mr. Q. did not find dry salt efficacious, though brine has been reported by others as useful. We dusted the cabbages in our garden patch with some Persian Insect Powder (Pyrethrum), which we happened to have at hand, when the presence of the caterpillars was discovered, and at the time of writing, the application appears to have destroyed them. This would, however, be too expensive on the large scale. Several are at work with various destructive agents, and we hope to hear that some cheap and efficient one has been found. It is estimated that the loss from this insect will, in the vicinity of New York alone, exceed half a million of dollars; and already the price of cabbages has considerably advanced. The figures we give will enable the insect to be identified in all its stages. As the destruction of every chrysalis or perfect insect prevents the appearance of many caterpillars, the work should commence with these without waiting until the despoiled condition of the cabbages makes it necessary to do something to save the crop. As the chrysalis is not formed in the earth we are able to fight it in that stage more successfully than we can some others. The caterpillar when grown, leaves the cabbage and seeks shelter under any object close at hand, and there hangs itself by a loop of silk, and changes into a pupa. It has been suggested that this habit be taken advantage of; and by placing boards or slats among the plants, slightly raised above the earth to afford the insects a ready shelter, many may be captured. This method is worthy of attention, as is the employment of persons to capture the butterflies. These, though very active at midday, are not so, early in the morning, and numbers may be caught with a sweep-net of muslin. The insect has this year caused sufficient loss to arouse cabbage growers to the necessity of united action; and operations should begin by a careful clearing up of all the rubbish after the late crop is taken off. We do not know if the chrysalides could withstand the action of the manure heap. If many were found among the rubbish it would be safest to burn it. The butterflies should be warred against on their first appearance next April upon the early planted crop. Now that the enemy is known and his tactics understood, our cultivators should not be defeated by it another year.

Fig. 1.—MALE BUTTERFLY.

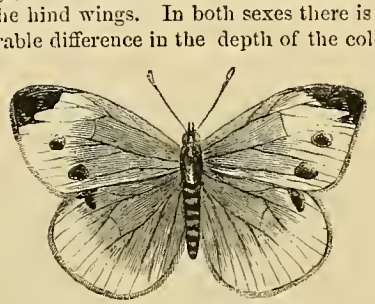


Fig. 2.—FEMALE BUTTERFLY.

Fig. 3.—CABBAGE CATERPILLAR.

Fig. 4.—CHRYSALIS.

Cranberries upon Upland.

In an item in last month's Basket, we stated that we had seen cranberries growing upon dry land, and affording a profitable crop. As we have before stated that we had seen several failures in this direction, we take pleasure in recording a success. As it is a subject which interests many of our readers, we shall go somewhat into detail in describing the culture, as, from what we have seen, we are convinced that all the conditions must be observed to insure success, and that any considerable omission or neglect will result in failure. In other words, it is a business, which, if undertaken, must be

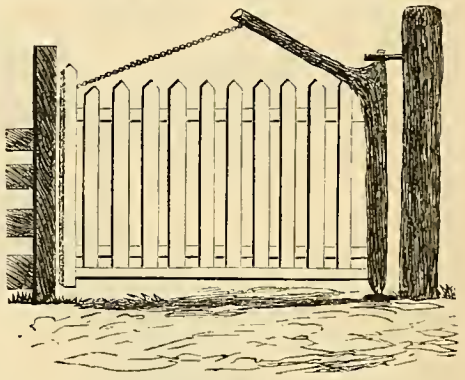
closely attended to, or it had better be left alone. The plantations which we visited were near North Islip, upon Long Island. The land is very level, and is what is known as pine barrens, the natural growth being scrub pines and scrubbier oaks, with such herbaceous plants as are common to similar localities. The soil is sandy; at a depth of from one to four feet is a hardpan of very hard and coarse gravel of variable thickness, and below this it is pure sand as far down as any excavations have penetrated. The soil is not so poor as it looks, and responds readily to cultivation in fair farm crops. At this locality there are some twenty acres in cranberries, in lots varying in size from a garden patch to five acres. The land is first cleared and thoroughly grubbed, to remove all the natural vegetation. The brush, roots, and other rubbish are taken off and burned elsewhere, as it is found that if burned upon the ground the ashes favor the incoming of weeds. The surface having been plowed and made as smooth as possible, it is ready to be planted. Planting is done in the spring, as the action of frosts is injurious to late set plants. Shallow furrows are opened across the field at three, or, preferably, four feet apart. The plants that have been set in this locality thus far have been obtained from native bogs a few miles distant, and the best success has attended the planting of vines from localities that were naturally wet, rather than from dry ones. Care is taken to select such wild plants as are known to bear well. The plants are set, if short, about 8 inches apart; if the vines are long, the root is set, the long vine bent down in a line with the row, and a handful of earth placed upon it towards the end so as to form a layer. By this treatment the young growth will start at two points—from the root and from the place covered with earth. Three or four stems, which are very slender, are taken together and planted as one. The plantings made last spring, as well as those two years old, were remarkably uniform; there seldom being a vine missing in the rows. The spaces between the rows are worked with the cultivator as often as necessary to keep the surface free from weeds, and the rows themselves must be hand-weeded with as much care as a crop of onions or carrots. The first year but few introduced weeds come in, and the principal trouble is with native plants, the seeds or parts of roots of which have been left in the soil. These must be thoroughly removed as they show themselves, and as they can be taken out the first season with much less disturbance to the cranberry plants than at any future time, no pains is spared to insure their eradication, and to give the vines the unmolested possession of the soil. The vines will become well established and make some growth the first season. The next year the treatment is the same as the first—cultivation between the rows and thorough hand-work. The native weeds will this year have been subdued, and the vines have spread so as to make the rows about a foot in width. A few scattering berries are produced the second year. The third year the rows of cranberries become wider, and the intervening spaces narrower, but the same order of cultivation is kept up. This year the introduced weeds will begin to be troublesome, and, as in all successful culture, must be taken in time. The principal weeds that we noticed (in Sept.) were Crab-grass, Sorrel, Spotted Spurge, and clover. The third year a small crop of fruit is yielded, but enough to pay for picking. The bed is in full bearing the fifth year, the ground being covered with a mat of plants with a narrow foot-path between the rows or beds. The care of an established plantation demands the pressing down in early spring of such plants as may have been thrown up by the frosts, the removal of such weeds as may show themselves, and the picking of the crop. The yield of an acre in full bearing is put at 30 barrels, worth from $12 to $22 per barrel, according to the season. Picking costs 1½ cent a quart. It is estimated that one man can properly cultivate five acres, and if he did nothing else, considerably more. The fruit is much higher colored than that grown in bogs, it being of a very dark maroon color; and it is claimed that it is much heavier; at all events, it has a high standing among the dealers. Our visit was made early in September, when the drouth had had an opportunity to work its full effect, and the plantations had been subjected to a test more severe than is likely to occur again for many years. The fruit under these circumstances, was not as large as in other years, but we saw, in properly cultivated fields, no indication of the dying out of the plants. In the neighborhood of the plantations referred to, cranberry fields can be established at the cost of $150 per acre, including price of land, clearing and setting of the plants. We saw not only well-cared-for plantations, but those in various stages of neglect, where, the owners not having given them the needed attention at the proper time, the fields were badly injured or hopelessly ruined. That the cranberry can be made to yield fair crops of excellent fruit in the locality visited, we have no doubt. Those who wish to experiment elsewhere, should proceed moderately, as it remains to be seen how much of the success here is due to the peculiar soil, and how much to the influence of the sea, which is only about five miles distant. It should also be borne in mind that under the favorable local conditions we have mentioned, success attends only thorough cultivation. We would express our obligations to Mr. Thos. E. Bridger, the pioneer in the experiment, Mr. H. Moss, and Mr. Ellis, for the facilities they afforded us in examining the various plantations.

Dwarf Pear-Trees.

There is no doubt that those who, like our friend Quinn, follow "Pear Culture for Profit," will find standard trees best suited to their purpose. But we must not forget that large class who have small gardens, with whom the pleasure of cultivation is the leading object, and to whom a dozen pears from their own tree is of more value than a bushel of fruit grown elsewhere. To such as these, the dwarf pear-trees are invaluable. They may be kept as dwarf as one pleases, be trained as small bushes or pyramids, or even grown to a single horizontal or vertical stem in what is called the cordon style. They are capitally suited to tenants; as when properly managed they may be taken up and moved to another garden as easily as a rose-bush. To do this the tree must be kept within certain limits. A dwarf pear-tree with the junction of the quince stock and the pear set several inches below the surface, soon ceases to be a proper dwarf, as roots are thrown out from the pear stem. In order that the tree shall remain truly a dwarf, the junction should be so near the surface that the pear roots cannot be found. If it be desired to keep the specimens very small, root-pruning should be resorted to, and the roots be thus kept within narrow limits. Rivers recommends transplanting the trees on alternate years as an aid in dwarfing. It is generally considered injurious to a tree to allow it to bear fruit the season following its removal; while this may be the case with standards it is not so with a well-managed dwarf. We had a row of dwarfs that it was necessary to move this spring. After their removal they set a fine crop of fruit, which was thinned, and when perfected was greatly superior to that upon trees of the same sort which remained undisturbed. The removed trees made a moderate growth, and have made abundant provision of fruit buds for another year. We think if it were generally known how manageable the dwarf pear-tree is, and that when the trees are set in hired ground they are not beyond the possibility of removal, many would plant them who are unwilling to set out trees which they must upon removal leave to the possession of others.

A Cheap and Durable Gate.

An article upon gates in May last has called out several descriptions of other patterns of gates; some of these have already been published, others are too complicated to be generally useful, while a few are, like the one here presented, simple and durable. The drawing is sent by Doct. A. Thornburgh, whose address we have mislaid. He says: "This gate will not—can not sag. The back part is made of a small sapling, with a fork or projecting limb, which answers for a brace. Through the top of this passes a piece of an old trace chain, tightened up by a bolt and nut, forming an arch over the gate; the remainder explains itself. I was pleased with the gates figured in the May No., but where one has no smith handy, he can, by using my gate, construct one equally as ornamental and much cheaper."



DR. THORNBURGH'S GATE.

Fall Sown Garden Crops.—The weather during the month of September, has been so dry in most parts of the country, that those things which were sown for late use or for keeping over winter, have had a poor chance. Spinach, sprouts, and other winter crops, in most cases, did not germinate until the rains came. If we have a favorable November they may still make good-sized plants before winter, and a chance should be given them as long as the growing season lasts, by cultivation and thinning.

The "Trophy" Tomato.

BY PETER HENDERSON.

When Col. Waring advertised this variety last spring, at 25 cents per seed, or 20 seeds for $5, few thought he would find many purchasers at such a price; but the universal interest taken in this fruit and the confidence placed in Mr. Waring's statements, led to the sale of seeds to a large amount to growers in all parts of the country.

I had seen the "Trophy" growing, the previ-

ous season at "Ogden Farm," at Newport, R. I., and while I felt that Mr. Waring's description was by no means exaggerated, I declined to give him my opinion until it had been tested in other localities, where soil and climate were different. The past season I planted out a couple of dozen plants which had been started in the usual way, and tied them to stakes. Under the same conditions I planted the "New-York Market," and "Rising Sun," the varieties we considered the best and earliest of last year's experiment. In earliness, the "Trophy" had no perceptible advantage over the other two; (and by the way I think we have reached the farthest point we are likely to attain in this particular,) but in size, smoothness, and beauty of coloring, as well as in solidity and flavor, it certainly exceeded them. So that taking it all and all, I believe it to be thus far unexcelled, whether grown for private use or for market purposes. This opinion I find very generally concurred in, in all sections of the country wherever it has been submitted to a trial test with others. The seeds will this year be disseminated everywhere at reasonable rates, but only yet in small quantities, as the stock is yet too limited to be sold except by the paper.

THE ENTIRE-LEAVED CLEMATIS.

A Herbaceous Clematis.

(*Clematis integrifolia.*)

The woody climbing species of Clematis are among our choicest and most showy garden ornaments, and are in some of their many varieties now well known and justly popular. There are a few low growing species which show no disposition to climb, and which are killed down to the ground every winter like other herbaceous plants. A specimen of the Entire-leaved Clematis (*C. integrifolia*), in our herbaceous border, has pleased us much this summer by the length of time it continued in bloom, it having had flowers upon it from June to September, seeming to pay no heed to the unusually hot weather. The stems, which are several from the same root, are about eighteen inches high, and bear opposite, simple and entire leaves. The flowers are solitary, and borne upon the summit of the stem, and the branches which spring from the axils of the leaves after the appearance of a bud upon the end of the stem has stopped its prolongation. The flowers are about an inch across, and of a deep purplish - blue, which is darker within the flower than upon the outer surface. The engraving gives the summit of a stem reduced in size. As there shown, the terminal flower has dropped away, and the fruit is well developed by the time the flowers upon the branches have opened. The head of fruit, on account of the hairy tail with which each little akene is furnished, presents a pleasing appearance, and a clump of the plant with its dark purple flowers interspersed with these hairy clusters, if not as showy as some others, is an interesting object. The plant is perfectly hardy, and is readily increased by division of the root, or by seeds which should be sown as soon as ripe. The Entire-leaved Clematis is a native of Austria. We have a native species of the same habit of growth, but its flowers are neither so large nor so showy. It is the *Clematis ochroleuca*, one of our rare native plants. It used to be found on Long Island until the growth of Brooklyn exterminated it; but fortunately it was found by Dr. Allen, a few years ago, growing in considerable abundance upon Staten Island.

THE ABUNDANCE OF GRAPES.—Never within our knowledge have grapes been so plentiful as this year. They have been so cheap that all but the very poorest in the cities could have an abundance. How many farmers, well to do farmers too, have had all the grapes they could eat? Plant one vine at least, and as many more as you please. They will produce some fruit with but little care, but will repay all the attention you choose to bestow. Plant a vine this fall.

The Feathered Hyacinth.

The plant represented in the engraving was sent to us last spring for a name, not only by amateur cultivators, but by persons well versed in botany. We do not wonder that it should puzzle a botanist, for that which passes for a flower has so completely changed from the natural condition of things that all traces of flower structure are lost. It is a monstrous variety of *Muscari comosum*, a plant closely related to the well-known Grape Hyacinth. The variety known as Feathered Hyacinth is not a garden monstrosity, but is known in the wild state. It is perfectly hardy, and may be planted with other hardy bulbs. Strong bulbs throw up stems a foot or more high, bearing a broad, purplish cluster of curiously confused and malformed flowers; these are branched, twisted, crisped, and fringed, in such a way as can happen only to a flower gone thoroughly crazy. Some have likened the appearance it presents to that of coral. The French call it *Lilas de terre*, Ground Lilac, and the cluster at a distance has some resemblance to a lilac cluster both in form and color. It blooms in May and June, and makes an excellent flower for bouquets. The bulbs are sold by the seedsmen at 5 and 10 cents each; and are usually catalogued under the antiquated name of *Lyacinthus plumosus*. It belongs to the genus *Muscari*, which is quite distinct from *Hyacinthus*. Others of the genus have a tendency to run into unsual forms; we have seen the common Grape Hyacinth with the upper part of the flower cluster bearing malformed flowers, but not of sufficient beauty to warrant its propagation as a distinct variety.

THE FEATHERED HYACINTH.

THE HOUSEHOLD.

(For other Household Items, see "Basket" pages.)

Very Young Children at Funerals.

Some of us have learned a lesson lately, with regard to children too young to understand about death. Little Florence was not three years old when her baby brother died. So long as his little body lay in his crib she showed no particular grief, probably supposing that he would soon awake. But when strangers took him from the house, in his coffin, she began to be seriously troubled. At the grave her distress was so keen that all who witnessed it must have felt that a great mistake had been committed in allowing her to be present. "Don't put my little brother in that hole," she screamed in piercing tones, and no one could calm her. She was afterwards told that little brother had gone to heaven; but no one could disabuse her mind of the belief that heaven is in that dark hole where she saw his coffin lowered. When her mother told me about it, assuring me that she should never again allow so young a child to receive such a shock, I thought with a new impulse of affection of that sympathizing mother (mentioned in the May *Agriculturist*) who dressed the grave of her friend's child with evergreen boughs and flowers, so that all appearance of a "bare open grave" was removed, and the little coffin was gently placed in "a bed of sweetest flowers."

Little Florence came running to me the other day to report what a kind-hearted friend had told her—something about "oh! such pitty flowers, and oh! so many pitty things to play with—oh! so nice!" "Who has them?" I asked, not knowing what she was talking about. "Little brother, down in heaven," she answered. "*Down!*" Well, that may be as well as to say "*up* in heaven," in a literal sense. I was glad that the little one had received an idea of heaven that made it seem a pleasant home to her childish comprehension. Perhaps she will some day be able to conceive of a brighter entrance to that happy land than the gaping grave she saw, and her nervous system may possibly have received no shock nor strain from which it will not ultimately recover; but it would be kindness to the little ones and kindness to all bereaved ones, if everything reasonable should be done to lessen the grim ghastliness of death and make it seem what it really is, only a natural change, though sometimes, in a certain sense, premature, from one department of our Father's universe to another. R.

Fig. 1.—SIMPLE MATCH-SAFE.

Matches and their Safe-Keeping.

Friction matches allow us to kindle a fire with the least possible trouble. House-keepers of the present day know but little of the difficulty those of older times had in getting a fire, and of the care exercised in keeping it. Perhaps some can recollect how cautiously the coals were covered with ashes at night, that the embers might be ready to start the morning fire; and when with all the care the

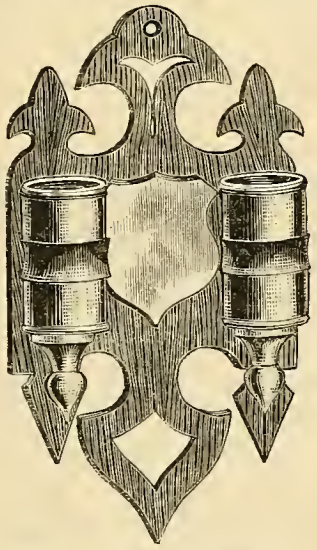


Fig. 2.—DOUBLE MATCH-SAFE.

coals were found dead, how irksome it was to go of a cold morning to a distant neighbor's to "borrow some fire," and convey it home in a pan or

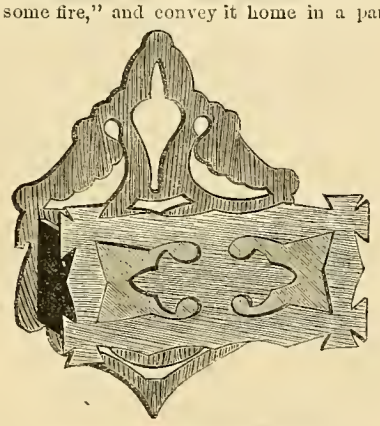


Fig. 3.—CARVED MATCH-SAFE.

shovel, in order that the household machinery might be once more set in motion. But the cheapness of matches has done away with all this, and now a scratch with a match brings the needed servant to do our bidding. The increased facility in obtaining fire has brought with it increased danger. The scratch that will bring the friendly fire will also bring the fire fiend to burn and destroy. Investigations by the proper officers in our large cities have shown that a considerable share of fires is to be attributed to carelessness with matches. There cannot be too much caution exercised in keeping matches, whether the stock for future use or those kept at hand to supply the daily needs. A match carelessly dropped may be ignited by the tread of the next passer, and give rise to a conflagration, or it may fall into the hands of a young child, and thus be the cause of disaster. Rats have been known to carry matches to their holes and thus add to their general mischievous ways by turning incendiaries. When a stock of matches is kept on hand they should be stored where none but the proper persons can have access to them, and in such a manner that there can be no possible danger of ignition by accident. We keep them in a tin box. Equal care should be taken with those kept at hand for frequent use. Leaving them about upon the mantle-shelf and in similar places should not be tolerated. There are match-safes of various designs sold at the stores which may be had at little expense, but any box or receptacle that can be affixed in a convenient place will do as well. The important thing is to have the match-safe in a fixed place, and have it understood that matches are to be found there and no where else. It is advisable that the receptacle have a rough surface for scratching the matches upon, as this will prevent much disfiguring of the woodwork. In rooms where there is no fire it is better to have a place to receive the ends of burnt matches. A half-consumed match is a small thing, but neat persons are often puzzled to know what to do with it, and all doubt upon the matter is done away with if a receptacle is provided. We give figures of match-safes in which some ornamental work is introduced. They will serve as suggestions to those who would like to make such articles. Their woods of various kinds, including cigar-box material, are easily worked by the use of a sharp knife and a fine saw. The cylindrical receptacles shown in fig. 2, may be made out of the round wooden match-boxes.

Training Children to Work.

BY FAITH ROCHESTER.

A little girl of twelve came to live with me a few weeks, doing household chores for her board. I thought I should teach her just how to wash the dishes, but some engagements prevented my doing so on the first occasion of her officiating at the dish-pan. I went into the kitchen after she had finished the task, and looked to see how the work was done. The sink was dry and clean. It actually *was* a plain kitchen table, but "sink" reads so much better! And every body knows that, theoretically, dishes should be washed in a good sink with racks and drains, and convenient supplies of hot and cold water. I felt of the dish-pan and dish-cloth. Both were guiltless of grease and properly cared for. The tumblers and spoons and forks looked bright and clear, and the plates and knives were free from spot. I did not ask the child how she had done her work. The result was satisfactory, and I let her go on as her mother had taught her.

Then I hired a "young lady" to do my work. She knew how—oh, yes! of course she did—to do everything; so I did not venture any suggestions at first. But such discomfort and uncertainty as we all felt about everything she undertook! And somehow, I had an impression all of the time, that she disliked work, and was unused to it, and might lame her back, or hurt herself in some way; so thought I had better do everything that was hard and disagreeable myself.

No doubt the difference in the working habits of these two girls was owing in great part to a difference of natural temperament; but it was easy to see that their home training had not been at all alike. There is every variety of talent among children. Some have much more executive force than others. Such children are "always getting into mischief," and it is hard to bear with their restlessness and its results. But this tendency to activity may be made to take a useful turn quite early in life, if properly directed. Whatever the child's temperament, it has a right to such an education of its faculties as will enable it to take care of itself and be useful to others in after life. A parent has no right to mark out a child's future career and educate it especially for that; but there are certain things that are necessary to be done anywhere, in order to secure the general and individual welfare.

It is not so necessary that a child be taught how to do each particular thing, as that it be trained *to do something very carefully and thoroughly*, and that it be taught perseverance. It is a great lesson when a child has once learned how much more enjoyment there is in doing a piece of work with accuracy, or with skill, than in doing it in a half-way, bungling fashion. Don't require too much at first. It may be a bit of over sewing. The first stint should be a small one, a single inch, perhaps, with the promise of some little treat when the stitches are all made evenly. Criticise kindly and sympathizingly, but never say "well done," until it *is* well done. Pick it out over and over, if need be, until the thing is right, and if the work gets soiled in the process, say nothing about it; children are so easily discouraged in their first efforts. Over-praise is just about as bad. Genuine *sympathy* is the right thing, joined with firmness in what we

know to be for the child's good. We ought to use judgment in giving a task to a child, so that it may be able to carry the task through without getting perfectly sick of that kind of work. If we become convinced that the task set is really too great for the child's powers of endurance, either physically or mentally, we had better tell the little one that we have changed our mind and that it need not go on; for it is not well to simply cease insisting upon the performance of the task, leaving the child to a guilty consciousness of having failed in what was required of it. But, oh dear! how children will "beg off!" Katie knows it will take her all day to pick up the buttons she has just spilled, and Sammy is just as sure that it will make him sick to pick up a basket full of chips. Don't be impatient with them. Children will be childish—those, at least, who are destined to grow up. It is our business, patiently to teach them to be reasonable. Encourage them. Let them know of something very nice that is going to take place as soon as the buttons or chips are picked up. Under the influence of happy expectation, the task—over which they had been dawdling with tears—will be finished in a twinkling. When it is done, before the treat comes, call their attention to the smallness of the task when resolutely undertaken.

Children who have been trained to observe what is going on around them, to be careful in the details of their work, to plan their work before beginning it, and to persevere in what they have undertaken, will make good, faithful workers in almost any department. They should be encouraged to work with rapidity, but not at the expense of thoroughness. A great wrong is done to children when they are overworked by avaricious parents; but it is also wrong to allow children to grow up with untrained powers and shiftless habits.

To Catch, Dress, and Cook a Chicken.

It is not easy to catch a chicken in the day-time, unless you know how to do it. This is one good way: In the bottom of a pail put a few kernels of corn or a few bread crumbs. Tip over the pail on its side, and hold it so, standing behind the bottom of the pail. When Biddy walks into the trap to get the corn, reach over and seize her by the tail. If you wring the chicken's neck, do it so thoroughly, that the poor creature will not come to consciousness when half-picked. Hold it by the head, and swing it around and around, until it is quite dead. It can be picked more rapidly and with no trouble from vermin—if, unfortunately, the fowl is infested with them—after dipping it all over in scalding water. Those who save the feathers for their own use or for sale, prefer to pick them dry, and this is most easily done while the chicken is still warm. After all the feathers and pinfeathers are removed, pass the fowl through a blaze—a paper burned on the hearth or a lighted candle—to singe off the hairs from the skin.

Now there is a chance for skill and the pleasure that results from the use of skill, in separating the joints of the fowl. Take off the head, and cut away a small portion of the skin around the union of the intestinal canal with the outer skin. Make this opening large enough to introduce the hand, and you can gently draw out the entrails, crop and all, in one mass. Most people cook the liver and heart. In removing the legs and wings, you will soon see how neatly the muscles cleave apart so that there is comparatively little cutting to do. Cut through the flesh of these limbs at the joints, and then break the joints apart, cutting the ligaments. There is a small place in the backbone, where it may be easily broken. Try to separate the "wishbone" from the shoulders and breastbone, for the children's sake. Then it is not difficult to separate the breast and back, and to sever the neck from the back. The pieces should then be washed.

There are many good ways of cooking chickens. This is the last one I have learned, and very good. It is an easy way. Put a spoonful of butter in the bottom of a frying pan, lay in the pieces, cover it, and set it in the oven. Turn the pieces several times while cooking. When done, take out the chicken, turn off nearly all of the fat if there is much of it, and make a gravy of the remainder by adding a teacup of water; thicken, when boiling, with a thin paste of flour and water.

I doubt if this is quite as wholesome as the common *chicken-stew*. Put the pieces in a kettle with water enough to cover all. Let it come to a boil rather slowly and simmer gently until very tender, adding boiling water whenever any is needed to prevent burning. Before it is quite done, salt the whole. Take up the pieces, when very tender, and make a gravy of the broth by thickening it and adding a little sweet cream. This broth should always be skimmed when it first begins to boil, and all the fat floating upon the surface should be removed with a spoon before it is salted. Chicken fat is not very palatable, and when it is "tried," it makes a good oil for many domestic uses. R.

Cooking Egg-Plants.

Though the season for Egg-plant is about over, we print for future reference the following Creole style of cooking the vegetable, furnished by Mrs. A. L. Howard, Pike Co., Miss. We shall be glad to receive the recipes for other Creole dishes which Mrs. H. offers to send. She says: "Take six Egg-plants, cut lengthwise (through the stem as well), and soak them half an hour in salt water, boil until tender; it is a good plan to score them slightly around the edges before boiling. When tender dig out the center carefully so as not to injure the skins, which will then be left hollow with a handle like an oval frying-pan. Take about a pound of light bread (some prefer more and some less), soak in water until soft, and then squeeze out, mix with the contents of the Egg-fruit, kneading thoroughly together, season with salt, red pepper pods chopped, and one minced onion. Put into a frying-pan with a large spoonful of lard, and stir the mixture over the fire until the lard is well mixed in; then pack the mixture in the skins that have been emptied. Brown and roll bread crumbs, and sprinkle thickly over the top of each, put a few specks of lard over each, and put in the oven and brown nicely. Or you can pack the mixture in a shallow tin or pie-plate, and bake. Or you can keep it in the frying-pan, allowing it to brown into a cake."—The direction to "take six Egg-plants," shows that the small variety is still in use in Mississippi. One of our Improved New York Purples is large enough for a good-sized family.

Time for Reading.

BY FAITH ROCHESTER.

Let us *take* time for reading. It will never come if we wait to have every piece of work finished, and every speck of dirt removed from each article we use. We can always find something else to do, and conscientious house-keepers, with little taste for mental pursuits, are apt to make a great blunder. "The life is more than meat, and the body than raiment," which means—if I may be allowed to preach a wee bit of a sermon—that you yourself, with all your immortal faculties, are of vastly more importance than your house and furniture, and clothing and cookery; and these are utterly worthless if they serve as hindrances instead of helps to your individual human culture. No kind of labor is degrading if done from a worthy motive, and no motive can be nobler than the womanly desire to make a *pleasant home*. With this end in view—with love as a prompter—washing and darning and scrubbing are all elevated from drudgery to a nobler place. But our homes cannot be properly attractive and profitable to our families if we ourselves are dull and harrassed. Our brothers and fathers and husbands and sons need cheerful and intelligent companions at home, far more than they need nice dinners and spotless linen. It is necessary that good home-makers and keepers should read and reflect, and listen and converse.

What shall we read? Whatever really helps us along, whether it be history, science, philosophy, or morals. I can't read hard books when I am tired. Sometimes for several weeks the cares and labors of housekeeping and maternity take so much of my strength that mental *labor* is impossible, and then I take what I call easy reading—good stories and the lighter newspaper articles. But if we live on light reading entirely we cannot expect to gain in mental strength and growth.

Do you know what a joy it is to feel that, though your school-days are long past, your intellectual growth is still going on? The lessons of our own experience are most valuable, I know, but good books are great helps. From them we get the results of the experience and observation of others.

How to Roast a Pig.

BY MRS. "J. W. T."

Charles Lamb wrote a "Dissertation upon Roast Pig." He introduces the article with an anecdote of a Chinaman named Ho-ti, and his son named Bo-bo. One day Ho-ti went away, leaving the boy Bo-bo to watch the hut and a fine litter of young pigs. Boy fashion, he got to playing with fire and dropped some sparks into a bundle of straw, which soon reduced their humble abode to ruins. Bo-bo was in consternation, not so much at the loss of the building, as at the death of the young pigs. While thinking what kind of a story to invent in order to divert the wrath of his father, whom he felt certain would beat him unmercifully, he happened unconsciously to grasp a leg of one of the burnt pigs, and as it scorched his fingers, put his hand to his mouth and tasted the *crackling* which had come away from the roasted leg.

He fell to work with a will, and piece after piece of the pig found its way down his throat. He did not come to consciousness of the outer world, until he felt the blows from his father's cudgel.

"You graceless whelp, what have you got there devouring? Is it not enough that you have burnt me down three houses with your dog's tricks, and be hanged to you, but you must be eating fire, and I know not what. What have you got there, I say?"

"O father, the pig, the pig! Do come and taste how nice the burnt pig eats."

It was not long before Ho-ti had tasted the pig, allured as much by the delicious smell as by Bo-bo's arguments; and roast pig has ever since been considered one of the daintiest luxuries of the world.

To be in its prime, the pig to be roasted should be not less than a month old, and certainly not more than five weeks. The nearer to the length of a moon's journey, the better. It should be killed and dressed the day before it is required to be cooked and eaten. It will deteriorate in flavor if kept longer, and a shorter time would not allow of its getting cold and firm, which is equally important. Caution the butcher to be careful not to make too large an opening, as it is difficult to keep the pig in good shape if the bones of the hips and chest are divided. The head should not be removed, and the feet should also remain. The brains may be removed by opening the head from the under side, and returning the parts to shape with the aid of skewers and string. The feet should be doubled under the body, and the pig should sit on them while in the oven. When the force-meat is all in, stitch up the opening securely.

Put the pig into a hot oven, with no water in the pan, nor gravy of any kind. As soon as the surface of the skin is a little warm, rub it over with a little butter confined in a muslin bag; a tablespoonful will be enough. This process should be repeated every fifteen or twenty minutes until all the roasting is complete. From two to three hours will be required to cook it, but when of a fine brown—sides, feet and all, it is probably done.

If onions are relished by the family, the force-meat for stuffing, will be made as follows: Grate into crumbs a small loaf of bread, and add to them two good sized onions chopped very fine, and a tablespoonful of pulverized sage, a teaspoonful of pepper, and two teaspoonfuls of salt. Mix thoroughly, form into a large ball, and put inside the body of the pig. Onion sauce, apple sauce, and potatoes boiled whole, with the gravy from the pan after the fat is removed, are the usual accompaniments.

BOYS & GIRLS' COLUMNS.

Queer People.

BY "CARLETON."

There are some very queer people in the world. I dare say that if I were to go through the country I should find in every town somebody whom the people call "queer," who have some crotchet or other in their heads. I knew a man once who thought there was a bottle attached to his nose by a string, and when he was walking through the street held his hands before him to protect it. "Be careful of my bottle,"—he would say when he was in a crowd. It was a reality to him. He could see it. It was no use to tell him that it was a whim. It was no use to take a pair of scissors and cut the string, for it would instantly grow together again. No doctor could remove it. I never knew how the bottle came there in his imagination, nor what use it was to him, but he came to consider it as a part of himself and was loath to part with it. He was an old man and the children used to call him "Old Bottle." He was a monomaniac. He was all right on every other subject but insane on that. But there are people in the world who are queer without being insane.

HOSPITAL FOR SICK ANIMALS IN INDIA.

Some of the queerest people, that I ever saw, live in India, and are called Jains. They build asylums for cows, horses, donkeys, cats, and dogs, just as we build them for sick folks, for orphan children, and for old people. If you ever visit Bombay, you will find one of their establishments there, consisting of sheds built around a large square containing several acres of ground. At first sight you might think it was a cattle show—the sheds being arranged like the cattle pens, horse stalls, and poultry coops, at our State and County fairs. Or you might think it a market-place for the sale of live-stock. Walking around the inclosure you will see some poor old cows, so thin that you can almost look through them—nothing but skin and bones. They do not give milk—they are too old for that. In some of the other pens, you will see a lot of old horses—knock-kneed, spavined, foundered, blind, wheezy—so old and poor that it is a wonder they do not knock them on the head and give them to the crows. Farther along you will find hens and roosters. The hens are too old to lay eggs, and the roosters so old and tough that it is doubtful if you could ever cook the toughness out of them. In other pens you see hundreds of mean, mangy curs, full of fleas, snapping and snarling at each other; you will think that a premium has been offered for the meanest instead of the best dog, and that the people have brought in all the ugliest puppies in the country. And so with the cows, horses, and chickens.

But it is not a cattle show such as we have in this country, although it is a showing of stock such as you can find no where except in the East. It is an asylum—a hospital—not a place, however, to cure diseased animals, but an establishment where they are taken care of through life—not because the horses have been good roadsters, or the curs faithful dogs, but because the people who have built the establishment are a queer set. I have heard that they also have hospitals for insects, though I did not see them. But I saw the cattle, fowls, and horses. The Jains never kill any thing—not even a mosquito, if they can help it. They may do it by accident, but never intentionally. A swarm of mosquitoes might present their bills and take their fill of blood out of the veins of these queer people, and they would not give them a slap for fear of hurting their grandfathers or grandmothers or somebody else! I dare say that you do not quite understand this, but it is true nevertheless.

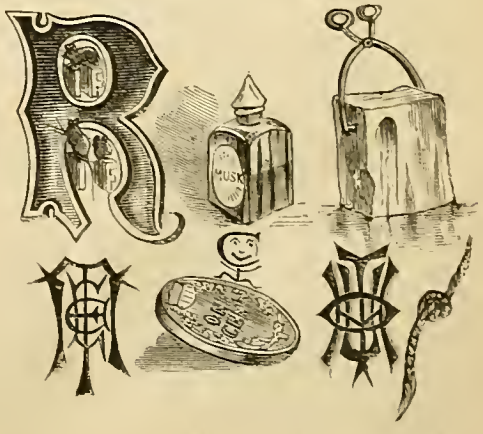
These people have a strange belief—quite as strange as that of the old man who thought he had a bottle on his nose; they think that when a human being dies his soul goes into the body of an animal, bird, reptile, or insect, and that if they kill any thing they will be hurting somebody who once lived in this world. If they should give a donkey a kick, who knows that it might not be a kick at their grandfather? or that a blow given with a stick or stone at a hen might not fall on their grandmother! They never brush down the cobwebs from the corners of their rooms, nor drive the spiders away, for fear of disturbing their relatives in the other world, who come back and spin their webs in the houses where they once lived, to be near those whom they loved. The fleas that hop and skip so nimbly, and tickle you so delicately, may be old schoolmates! If you catch them it will not do for you to pinch their heads, for possibly you may have your head pinched by and by! Some of these queer people, when they walk along the streets, look very carefully for fear of stepping on ants,—not only the little busy workers in the sand, but their aunt Rachel, Mary or Lucy or somebody else's aunt. Of course, if you believed as these poor people do, you would not want to do so ungallant a thing as to crush them beneath your feet, not even if they did pull your hair when they combed it, or made you walk straight in childhood.

I saw in one of the asylums a great baboon that grinned when I came near him;—perhaps he recognized me as a man and a brother! There were half a dozen fat hogs snoozing in their pens—like grandfathers taking a nap after dinner. Roosters were smoothing out their feathers and strutting round the yard, reminding me of dandies who are continually feeling of their neckties or looking at their kid gloves to see if they are all right. The sight was not near so pleasant as it is to see a cattle, horse, and poultry show. That is real pleasure, but this was painful; for the poor creatures who set up this hospital did it from religious motives, and they tended the old and yelping puppies as a religious duty. They believed that it would add to their pleasure in this world and secure their happiness in the future life. How much better it would be, if instead of keeping the breath of life in old donkeys, or taking care of sick pigs, they were to do what they could for their fellow creatures who are not able to help themselves! In visiting these asylums you see the incalculable difference between this religion and Christianity. The one spends its efforts in taking care of animals, to the neglect of human beings, and the other goes out to the poor, the degraded, the sick, and dying, and bestows its blessings everywhere.

You find other queer people in the East—some who never pare their finger nails, but let them grow as long as they will, just as you sometimes see peculiar persons in this country who never cut their hair. Those Eastern fanatics think that to have one or two long finger nails is genteel. They do not let them all grow long, for, were they to do so they would not be able to use their hands. Only one or two on the left hand are allowed to grow, and you sometimes see them ten or twelve inches long. These fellows do not work, but live a genteel life, giving pretty much all their time to the cultivation of their nails. There is another set of queer people who think that they are very holy. They sit by the road side with ashes and dirt daubed on their faces and bodies and beg of the passers by. They make long pilgrimages, crawling on their hands and knees, with the idea that it is a meritorious act. Some of them climb up into a tree and hang head downwards by the hour together, until the blood is ready to burst from their temples. Others provide themselves with a small cup, dip it full of water and carry it hundreds of miles to sprinkle it on the head of a hideous image. I do not wonder that you laugh at their absurdities, but they have their laugh at us. They think it very queer that men and women in this country should walk arm in arm. Such a thing was never seen in the East. They think it very strange that we wear stove-pipe hats and kid gloves, and swallow-tailed coats. But the strangest of all to them is our changes of fashion. In their country, fashions never change; but we are such a changeable people that we must have a new fashion almost every day. I once heard of a farmer who bought a bonnet for his wife, and drove home just as fast as he could. His wagon made such a racket that everybody rushed out to see what was the matter. They thought somebody was sick and he was after the doctor. "Is your wife sick?"—shouted a neighbor.... "No. I've got a new bonnet for my wife and I am hurrying home for fear it will be out of fashion before I get there!" But in Eastern lands the fashions are the same to-day that they were a hundred years ago. Judging from some of the old buildings and monuments that we see there, which are covered with figures, it would seem as if the fashions had not changed much for two or even three thousand years. *What queer people!* I do not wonder that you say so. I do not know as I should want to dress as my grandfather did, or as the people did a thousand years ago; and I dare say that many girls think that their grandmothers in their frilled lace caps and short waisted dresses were perfect frights. It would not be strange if somebody by and by said the same about us.

New Puzzles to be Answered.

No. 395. *Illustrated Rebus.*—Good advice which would save much trouble if followed.



No. 396. *Illustrated Rebus.*—Giving a maxim which cannot be too often repeated, nor too carefully heeded.

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SMOKING OUT SQUIRRELS.—DRAWN BY J. BOLLES.—*Engraved for the American Agriculturist.*

Most boys are natural-born hunters. Almost every one of you looks with a feeling something like envy upon a brother who is old enough to be trusted with a gun. How you would like to go out hunting squirrels or rabbits with a gun! But as you cannot do that, you set traps for the rabbits and try to circumvent the squirrels by smoking them out of the quarters they have chosen for the winter. Rabbits are fair game, as they do much mischief, and trapping them will prevent injury to young trees in the orchard. But the squirrels, we are not aware that they do much harm; but as they make a very good pie, we suppose that they come under the head of game, and that boys are not much to blame for trying to capture them. Probably the squirrels, if they were consulted, might be of a different opinion. It is not so pleasant for them after they have put away their winter's stock of nuts in the most comfortable of hollow trees to have all their nice plans for the winter disturbed. The very spirited picture which Mr. Bolles has made for you, tells the story of one way in which boys hunt squirrels. The home of the little animals in a hollow tree being discovered, the boys organize an expedition. There is no fun in going alone, there must be several to enjoy the sport. Not only our boys, but neighbor Jones' boys must go, and if the Smiths can go along, all the better—we will make a Saturday of it. In the first place, we need a strong bag which has a wooden bottom tacked to it, some nails, some matches, and a sharp axe. We must first guard the hole at the root of the tree, and then find out how far up the hollow extends. Then the best axe-man of the party makes an opening at the top of the hollow and tacks the mouth of the bag securely over it. Now for the fire; some sticks are soon lighted; and leaves thrown upon the fire make a smudge which goes into the hollow tree with a warning for the tenants to quit. They cannot come out below, for the fire is there, but they soon find the opening we have made above, and a squeak and a bounce soon tell us that the game is bagged. Upon looking at the picture again, we do not think that it was our squirrel hunt that the artist sketched. These boys took a poor bag, and the game has escaped. It is no use for that tall fellow to try to stop his flight with a stone, for Mr. Bushy tail will soon be laughing at him from the top of a neighboring tree. After all, we are not sorry to see the little animal out-wit the boys. Squirrels seem to enjoy life so much, and their ways are so full of activity and grace, that we can hardly make up our mind to kill them, even if they are good to eat.

Letters from Young People.

It gives us pleasure to get letters from our young readers. Boys and girls, particularly quite young ones, write just as they would talk, say what they have to say, and then stop. We wish some older people would do the same. We have several letters from little folks that we should like to answer, did we know how to send a reply. When you write a letter to us or to any one else, first put down the Post-Office address, County, State, and date. Learn to do this in your first attempts at letter writing—don't write another word until you are sure that this is done. If this habit becomes fixed it will save much trouble in after life. You would be surprised to see the number of letters—not from young people, but from old ones—that come to the office of the *Agriculturist* in which this very important part is left out. These letters are usually upon business matters, of consequence to the persons sending them, and are of no more use than if they had never been written. Don't begin by making a long apology for writing—or use any of those tedious phrases, such as "I take my pen in hand."—Most people do take their pen in hand, and it is not necessary to say so. State what you have to say clearly, and in as few words as the subject will allow. Of course, if one has a story to tell, or an experience to relate, the style will be different from that of a mere business letter. When you have said what you have to say, stop—without any excuses. Don't wind up by the information that "It is getting late," or that "I have already tired your patience." Young people generally have letters addressed to the care of their parents, or some other person. When this is the case it should be distinctly stated. Sometimes we receive letters from our young friends with the request that we shall "answer right off;" just as grown people say, "reply by return mail." As our letters each day may be numbered by hundreds, each one of you must see that we can only answer the most important ones of those boys and girls who have written us expecting a reply; and those who receive none must accept this as an apology. We answer all of their favors that we can. We often wish that we could write with both hands at once, and that there were many more hours in the day.

The following list of those who have sent answers includes some names which were mislaid some time ago. Geo. D. Bunyao, C. F. Deibert, C. Murphy, C. G. Newton, W. H. Sanderland, G. E. Leach, Sara Leaurie, L. E. Eltinge, G. Wormersley, H. E. Simon, I. McCormick, Minnie Bloss, Wm. Griffith, J. H. Mulkey, Bell Greeley, H. R. & E. F. Warner, J. C. Slater, W. M. Allaire, A. W. Kelley, J. W. Lamb, J. C. Morrow, F. Spaulding, L. H. Schley, E. J. Bridge, S. C. Herron, C. W. Phelps.

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	Gross.	Op. Expenses.	Net.
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1866.....	864,917.57	200,710 61	664,206.96
1867.....	1,470,653.50	430,913.33	1,139,740.17
1868.....	2,300,767.17	843,166.54	1,457,600.63
1869...	5,670,822.25	2,993,523.19	2,677,299.06

The earnings of the main line for the current year will exceed $8,000,000, and are as follows:

January.....	$413,104.41	June.....	$729,274.46
February.....	394,176.47	July.....	784,099.64
March.....	488,392.91	August...	806,040.00
April.....	693,758.06	September.....	833,412.50
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291.	A place in thy memory	Smith
335.	A sweet song bird was singing,	W. F. Taylor
76.	After Dark	Stewart
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269.	All that's bright must fade	Stevenson
259.	Alt's Well	Braham
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343.	Angels Whisper	Glover
368.	Annie o' the banks o' Dee	Glover
257.	Araby's Daughter	Kiallmark
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32.	Beautiful Bells	Waverly
95.	Beautiful Hope	Bard
347.	Beautiful spirit, spirit of love, W. F. Taylor	
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185.	By-gone days	Raymond
272.	By the sad sea waves	Benedict
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30.	Call me thine own	L'Eclair
378.	Calmly the day is dying	Linley
215.	Canadian Boat Song	Moore
233.	Carrier Pigeon	Moran
85.	Castles in the air	Adams
94.	Cavalier, the	Glover
191.	Charity	"
406.	Child of the West	Hodson
430.	Claudine lived contented	Shields
389.	Come, dwell with me	Lee
422.	Come in and shut the door	Calcott
12.	Come hither my baby	Wiener
267.	Come, take the harp	Moore
144.	Coming thro' the Rye	Scotch
432.	Cracovian Maid	Guylott
326.	Cushlamachree	Stadler
367.	Cypress Wreath	Wiesenthal
13.	Danish Boy's Whistle	Graff
162.	Dawn of Day	Millard
69.	Day and night I thought of thee	Shrivall
255.	Deep in my soul	Nelson
375.	Dreams of the heart	G. Linley
175.	Ely Mavourneen	Benedict
336.	Erin is my home	Moscheles
415.	Ever be happy	Balfe
236.	Ever of Thee	Hall
222.	Evening Gun	Moore
232.	Fairy Boy	
74.	Fairies' Well	Waverly
247.	Fair Rosabelle	Lutz
374.	Farewell Jeannie	Blamphin
54.	Five o'clock in the morning	Claribel
477.	Flow on, thou shining river,	Stevenson
263.	Flowers of the Forest	Kotzeluch
213.	Forget not your Kathleen	S. W. New
166.	Fortune Teller	Pratt
428.	Forsaken, the	V. Gabrielle
427.	Florence	Jefferys
218.	Gaily through life	Linley
416.	Glide to the sea	M. B. Ladd
390.	Go, forget me	Mozart
6.	Good-bye, sweetheart	Hatton
425.	Gondoletta	Waverly
200.	Good-night, my dearest	Moore
167.	Good-Night	Flowers
414.	Grecian Daughter, the	J. P. Knight
298.	Had I a boat	J. Rogers
881.	Half-mast high	Claribel
372.	Harper's Song, the	Wiesenthal
178.	Harp of Tara's Hall	Irish
290.	Has sorrow thy young days shaded?	Moore
189.	He never said he loved	Hodson
249.	Health to Bonny Scotland	Lee
123.	Heart bowed down	Balfe
131.	Heaven and Thee	Giglielmo
180.	Her bright smile	Wrighton
229.	Here we meet too soon to part	Rossini
275.	Hey, the bonnie breast-knot,	Forbes
16.	His love shines over all	Raymond
201.	Home Music	Raymond
273.	Hope from sorrow takes the sting	Lutz
237.	Hurrah for the bonnets o' blue	Lee
142.	I can not sing the old songs	Claribel
101.	I have a rose	Carrington
421.	I knew a Sicilian Maid	J. Barnett
394.	I love but thee	P. Cianchettini
315.	I love the merry sunshine	S. Glover
281.	I will love thee to the last,	Montgomery
36.	I will not ask to press that cheek,	Gabrielle
224.	I'd be a butterfly	Bayly
418.	I'd offer thee this hand of mine,	
338.	I'm wearin awa', Jean	Bishop
127.	In happy moments	Wallace
391.	Ingleside, the	Wiesenthal

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128.	It ought not thus to be	Abt
342.	Isle of Beauty	Whitmore
141.	Janet's choice	Claribel
173.	John Anderson, my Jo	Scotch
97.	Juanita	Norton
412.	Kathleen Aroon	F. Abt
360.	Katy Darling	Bellini
170.	Katy's Letter	Dufferin
199.	Kelvin Grove	Scotch
210.	Killarney	Balfe
55.	Lady Mine	Waverly
369.	Land of the West	Lover
188.	Lass o' Gowrie	Scotch
287.	Last link is broken	Clifton
239.	Last rose of Summer	
73.	Larboard Watch	Williams
49.	Le Sabre de mon pere	Offenbach
34.	Life Boat	Claribel
341.	Light of other days	Balfe
33.	Light of the World	Hatton
434.	Like a flower	Wrighton
417.	Lillie Lee	Glover
117.	Little Bird, little bird	Claribel
348.	Little Diamond Dewdrop	Blamphin
354.	Little Gipsy Jane	Glover
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212.	Little Nell	Linley
403.	Lizzie Lindsay	Robertson
122.	Love light in your eye	Sedgwick
155.	Love in a Cottage	Smith
253.	Love is the theme	Tully
312.	Love not	Blockley
323.	Love thee, dearest	Viotti
230.	Love was once a little boy	
80.	Maggie Morgan	Scotch
15.	Magpie's secret	Claribel
214.	Maid of Athens	Kiallmark
388.	March of the Cameron men, the	
79.	Mary of Argyle	
384.	Mary of Castle Cary	McNeil
197.	Marian Ramsay	Raymond
405.	Marion's Soog	Claribel
250.	Mary, I believed thee true	Moore
245.	Marseilles Hymn	De Lisle
262.	Meeting of the waters	Stevenson
286.	Meet me by moonlight	J. A. Wade
60.	Meet me in the lane	Blamphin
370.	Melodies of many lands	Glover
151.	Memory of early days	Tetsch
266.	Minstrel Boy	Moore
98.	Molly Bawn	Lover
161.	Monks of old	Millard
45.	Moonlit sea	Prout
153.	Motto for every man	Hobson
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71.	My angel	Guglielmo
428.	My Blue-Eyed Nellie	Blamphin
311.	My gondola's waiting below	Hayter
219.	My heart aad lute	
363.	My mother dear	Lover
321.	My own, my guiding star	Macfarren
164.	My own true love	Millard
329.	Nellie	Blamphin
106.	Never mind the rest	Fase
433.	Norma's Song	Bellini
92.	Of what is the old man thinking?	Knight
240.	Oft in the stilly night	Moore
17.	Old cottage clock	Molloy
325.	Old familiar faces	H. Fase
285.	Old house at home	E. J. Loder
277.	Old kirk yard	"
307.	Old man's home, the	Anne Fricker
407.	One careless word	Alex. Lee
113.	Only a lock of hair	Claribel
283.	Orphan Ballad singers	Russell
111.	O take me to thy heart again	Balfe
104.	O that I were a song	Hine
73.	O would I were a bird	Blamphin
318.	O, ye tears	F. Abt
398.	Oh! Banquet not	Bishop
300.	Oh, smile again	Geo. Barker
190.	Over the summer sea	Verdi
226.	Passed away	Keanedy
25.	Passing Bell	Claribel
143.	Peace of the Valley	Balfe
253.	Pensez a moi, ma chere amie	Drake
426.	Pirate's Serenade, the	J. Thornton
293.	Poor Louise	Rodwell
8.	Prairie of tears	Schubert
52.	Pretty, pretty bird	Waverly
279.	Red coats	Scotch
419.	Regret, the	Cook
397.	Rest, warrior, rest	Kelly
339.	Robin Adair	Reeve
332.	Rocked in the cradle of the deep,	Knight
200.	Rose of Allandale	Nelson
19.	Rose of Erin	Benedict
379.	Rose of Tralee	Glover
85.	Rosy Wreath	Raymond
137.	Row, brothers, row	Saer
335.	Roy's wife	
110.	Scotch Lassie Jean	Peabody
85.	Scenes that are brightest	Wallace
221.	Shells of Ocean	Cherry
118.	She is not fair to outward view,	Sullivan
21.	She might not suit your fancy,	Millard
147.	She wore a wreath of roses	Knight
18.	Silver Chimes	Claribel
193.	Sing no sad songs	Linley
337.	Sing me an English song	Wrighton
119.	Skipper and his Boy	Gabrielle
223.	Smile, bonnie Lassie	Parry
56.	Smile of Memory	Waverly
102.	Smiles and tears	Clippingdale
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371.	Something to love me	Bayly
246.	So lonely	Butler
339.	Spell is broken	Bellchambers
411.	Spring time is come	Nash
424.	Star of home	German
319.	Star of love	Bacon
220.	Star-Spangled Banner	
24.	Still I love thee	Dobson
140.	Strangers yet	Claribel
37.	Susan's Story	Claribel
57.	Sweetheart	Balfe
186.	Sweet Flower	Blamphin
207.	Sweet Robia	Scotch
208.	Sweeter than the Breath	Nelson
284.	Switzer's song of Home	Moscheles
335.	Sweet song bird was singing,	W. F. Taylor
26.	Take back the heart	Claribel
363.	Teach me to forget	Bishop
116.	Then you'll remember me	Balfe
134.	There was a simple maiden	Macfarren
28.	There's a charm in spring	Hullah
304.	There is a flower	Wallace
289.	There's not a joy	Hause
334.	There's not a look	Stevenson
148.	'Tis hard to give the hand	Glover
171.	The Troubadour	Bayly
345.	These things can never die	Fase
105.	This world is full of beauty	Waverly
295.	They bid me forget thee	
288.	Those flaxen locks	Kiallmark
393.	Those happy days are gone	Lavenu
216.	Thou art gone from my gaze	Linley
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357.	Watcher, the	Lardner
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238.	What need have I the truth to tell?	Claribel
358.	What will you do, love?	Lover
3.	We'd better bide a wee	Claribel
359.	We have lived and loved together	Herz
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292.	We meet by chance	Kucken
366.	We met	Bayly
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205.	When ye gang awa	Scotch
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51.	Why wandering here?	Nathan
171.	Wilt thou not smile upon me?	Millard
241.	Wilt thou say farewell, love?	Moore
382.	Wiad thy horn, my hunter boy	Bishop
362.	Will you love me then as now?	"
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400.	Yankee Doodle	
416.	Yes, I will leave	
114.	You and I	Claribel

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187.	Bother the Men	Walker
409.	Bowld Sojer Boy	Lover
316.	Broken Down	Sinclair
157.	Bulls and Bears	Pratt
331.	Cackle, cackle, cackle	Bagnell
136.	Call her back and kiss her	Clifton
1.	Captain Jinks	Maclagan
9.	Champagne Charlie	Lee
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194.	Cruiskeen Lawn	Benedict
351.	Da, da	Lloyd
183.	Dancing Darkey	Moeslein
168.	Dancing Fairy	Waverly
228.	Dashing White Sergeant	Bishop
241.	Dutchman's leetle wee dog	"
198.	Early in the morning	Mac
322.	Fascinating Swell	Van Hess
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160.	Go it while you're young	Waverly
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324.	Have patience till to-morrow	Fase

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7.	I really don't think I shall marry,	Gabrielle
209.	I saw Esau	Davies
396.	I will stand by my friend	Bickuell
150.	I'll ask my mother	Earnshaw
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93.	Continental Schottische	"
88.	Cresent City March	"
120.	Drawing-Room Schottische	Donglass
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58.	Power of love	Wade
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169.	Reapers' Schottische	Little
156.	Rosalie Polka Mazurka	
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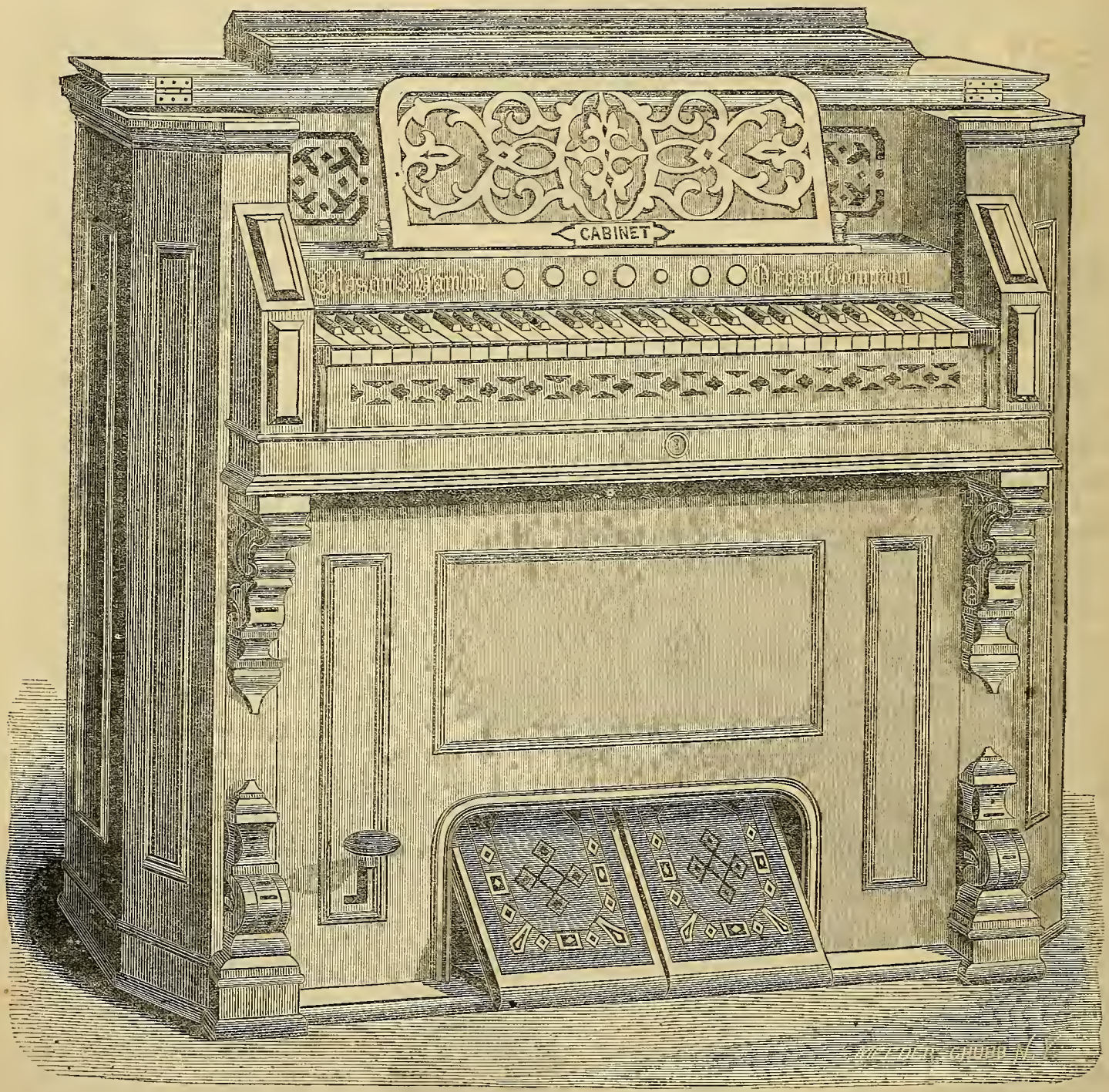

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17	*One Dozen Teaspoons*	(do.	do.)	$6 00	15	45	8	23
18	*One Dozen Table Spoons*	(do.	do.)	$12 00	19	65	10	33
19	*One Dozen Table Forks*	(do.	do.)	$12 00	19	65	10	33
20	*Child's Cup*	(do.	do.)	$2 75	7	27	4	14
21	*Gold Pen, Sil. Case,*	(George F. Hawkes)		$3 25	8	30	4	15
22	*Gold Pen and Silver Case,*	(do.	do.)	$5 00	12	37	6	19
23	*Gold Pen, Handle gold-tipped,*	(do.	do.)	$6 00	13	37	7	19
24	*Ladies' Gold Pen and Rubber Case*	(do.)		$6 00	13	37	7	19
25	*Lozo Pendulum Board*			$10 00	18	58	9	29
26	*Amusette*			$6 00	13	37	7	19
27	*Garden Seeds for a Family (40 kinds)*			$5 00	12	33	6	17
28	*Flower Seeds for a Family (100 kinds)*			$5 00	12	33	6	17
29	*Garden Seeds & Flower Bulbs*	(Selection)		$2 00	5	22	3	11
30	*Nursery Stock (any kinds desired)*			$20 00	30	97	15	49
31	*Set of Field Croquet*			$8 00	16	52	8	26
32	*Sewing Machine (Grover & Baker)*			$55 00	60	240	30	120
33	*Sewing Machine (Florence)*			$63 00	70	275	35	138
34	*Sewing Machine (Willcox & Gibbs)*			$55 00	60	240	30	120
35	*Washing Machine (Doty's)*			$14 00	21	70	11	35
36	*Clothes Wringer (Best—Universal)*			$10 00	18	58	9	29
37	*Melodeon, 4-octave*	(G.A.Prince & Co.'s)		$67 00	78	295	39	148
38	*Melodeon, 5-octave*	(do.	do.)	$112 00	138	400	69	200
39	*Piano, Splendid 7-oct.*	(Steinway & Sons)		$625 00	520	1550	360	520
40	*Silver Watch (American Watch Co.)*			$40 00	50	150	25	75
41	*Ladies' Fine Gold Watch*	(Am. Watch Co.)		$100 00	110	350	55	175
42	*Frank Wesson's Breech-loading Rifle*			$30 00	44	140	22	70
43	*Breech-loading Pocket Rifle*			$16 00	24	80	12	40
44	*Maynard's Combination Gun*			$55 00	60	240	30	120
45	*Double Bbl. Gun,*	(Cooper, Harris & H.)		$30 00	46	150	23	75
46	*Tool Chest (Patterson Bros.)*			$45 00	60	190	30	95
47	*Case of Mathematical Instruments*			$9 00	18	55	9	28
48	*Case of Mathematical Instruments*			$15 00	22	75	11	38
49	*Charles Pratt's Astral Oil (1 can, 5 Gal.)*			$4 00	9	32	5	16
50	*Barometer (Woodruff's Mercurial)*			$10 00	18	58	9	29
51	*Barometer (Woodruff's Mercurial)*			$15 00	22	75	11	38
52	*Buckeye Harvester Mower*			$125 00	150	450	75	225
53	*Patent Cylinder Plow*	(R. H.Allen & Co.)		$18 00	27	90	14	45
54	*Collins & Co.'s Cast Cast-Steel Plow*			$25 00	38	120	19	60
55	*Hand Cultivator and Weeder*	(Comstock)		$9 00	17	54	9	27
56	*American Submerged Pump*			$15 00	19	65	10	33
57	*Pump and Sprinkler (Page's)*			$5 00	13	37	7	19
58	*Family Scales (Fairbanks' & Co.)*			$14 00	21	70	11	35
59	*Building Blocks (Crandall)*			$2 00	6	20	3	10
60	*Pocket Lanterns (One Dozen)*			$9 00	17	54	9	27
61	*New American Cyclopædia (Appleton's)*			$80 00	96	325	48	163
62	*Worcester's Great Illustrated Dictionary*			$10 00	18	58	9	29
63	*Eumelan Grape Vine, No. 1*			$1 00	3	....	2	....
64	*Eumelan Grape Vine, Extra*			$2 00	5	....	3	....
65	*Double Harpoon Horse Hay-Fork*			$10 00	18	58	9	29
66	*Any Back Volume Agriculturist*			$1 75	....	20	....	10
67	*Any Two Back Volumes*	do.		$3 50	....	29	....	15
68	*Any Three*	do.	do.	$5 25	13	37	7	19
69	*Any Four*	do.	do.	$7 00	15	47	8	24
70	*Any Five*	do.	do.	$8 75	17	54	9	27
71	*Any Six*	do.	do.	$10 50	19	61	10	32
72	*Any Seven*	do.	do.	$12 25	21	68	11	34
73	*Any Eight*	do.	do.	$14 00	23	74	12	37
74	*Any Nine*	do.	do.	$15 75	25	80	13	40
75	*Any Ten*	do.	do.	$17 50	27	86	14	43
	—(Each add'l Volume at same rate)				....	....	....	....
76	*Fourteen Vols. XVI to XXIX*			$24 50	31	110	17	55
77	*Any Back Volume Agriculturist*			$2 50	....	24	....	12
78	*Any Two Back Volumes*	do.		$5 00	....	36	....	18
79	*Any Three*	do.	do.	$7 50	16	48	8	24
80	*And Four*	do.	do.	$10 00	18	60	9	30
81	*Any Five*	do.	do.	$12 50	21	71	11	36
82	*Any Six*	do.	do.	$15 00	24	82	12	41
83	*Any Seven*	do.	do.	$17 50	27	92	14	46
84	*Any Eight*	do.	do.	$20 00	30	102	15	51
85	*Any Nine*	do.	do.	$22 50	33	110	17	55
86	*Any Ten*	do.	do.	$25 00	36	116	18	58
	—(Each add'l Volume at same rate)				....	....	....	....
87	*Fourteen Vols. XVI to XXIX*			$35 00	47	143	24	72
88	*A $10 Library*	(Your Choice)		$10 00	18	58	9	29
89	*A $15 Library*	do.		$15 00	24	85	12	43
90	*A $20 Library*	do.		$20 00	31	106	16	53
91	*A $25 Library*	do.		$25 00	38	125	19	63
92	*A $30 Library*	do.		$30 00	44	144	22	72
93	*A $35 Library*	do.		$35 00	50	162	25	81
94	*A $40 Library*	do.		$40 00	56	177	28	89
95	*A $45 Library*	do.		$45 00	62	192	31	96
96	*A $50 Library*	do.		$50 00	68	207	34	104
97	*A $60 Library*	do.		$60 00	80	237	40	119
98	*A $75 Library*	do.		$75 00	100	282	50	141
99	*A $100 Library*	do.		$100 00	125	360	63	180
100	*A Choice of Good Books.* (See Terms below.)				....	....	....	....

Unbound, Post-paid. Bound. Post-paid. All sent paid through by Mail or Express.

☞ *Every Premium article is* **new** *and of the very* **best** *manufacture. No charge is made for packing or boxing any article in our Premium List. The Premiums,* **Nos. 8** *to* **11, 21** *to* **24, 27, 28, 29, 47, 48, 63, 64,** *and* **66** *to* **100** *inclusive, will each be delivered FREE of all charges, by mail or express (at the Post-office or express office nearest recipient), to any place in the United States or Territories.—The other articles cost the recipient only the freight after leaving the manufactory of each, by any conveyance that may be specified.*

Descriptions of Premiums.

(*For Premiums, and number of Subscribers, see Table.*)

Nos. 1, 2, 3, 4, 5, 6.—American Table Cutlery.—We are glad to be able to offer really good articles of American manufacture, such as are competing successfully with the best foreign goods. **Messrs. Patterson Bros., 27 Park Row,** who supply us with these articles, are also importers of English goods. They recommend these Knives, manufactured by the **Meriden Cutlery Co.,** as equal to any Cutlery in the market, and their recommendation is a guaranty, wherever they are known. We offer four kinds of Knives, and three sizes of each kind. No. 1 have Rubber Handles, which are actually boiling water proof, so that, if they were accidentally to remain in it for several minutes, or even hours, they would not be injured. The Blades are of the best steel, and warranted. Dessert size, with Forks, sold at $14....For 23 subscribers at $1.50, or 78 at $1, we will give either the medium size or the table size, sold at $15.50. No. 2 have Ivory Handles, are selected with great care, have Steel Blades, and are beautiful goods. Dessert size, with Forks, sold at $18.50....For 31 subscribers, at $1.50, or 100 at $1, we will send the medium size, sold at $20.50....For 34 at $1.50, or 112 at $1, we will send the Table size, sold at $22.50. No. 3 are made of Solid Steel and are *triple-plated all over with pure silver*, which will wear for a long time, while the Knife is actually indestructible by ordinary use. Dessert size with Forks, sold at $22.... For 37 subscribers at $1.50, or 118 at $1, we will give the medium size, sold at $24.50....For 38 at $1.50, or 120 at $1, we will send the Table size, sold at $25. No. 4 have Steel Blades, *triple-plated with silver*, and larger Ivory Handles, and are really splendid goods. Deesert size with Forks, sold at $25.50....For 42 subscribers at $1.50, or 128 at $1, we will give the medium size, sold at $28....For 45 subscribers at $1.50, or 143 at $1, we will give the Table size, sold at $30.50. The Forke, which accompany these Premiums, Nos. 1, 2, 3, are made of genuine Albata, and warranted *double-plated with coin-silver*. The Forks with No. 4 are warranted *Triple-plated with coin-silver*. These Forks are also furnished to us by Messrs. Patterson Bros....The Carving-Knife and Fork, and the Plated Steel are made by **The Meriden Cutlery Co.,** with the best Ivory, balanced Handles.

No. 7.—French Cook's Knife, Fork, and Steel.—Tbis is a long (10 in.) thin Knife, with Pat. Rubber Handle, made of the best steel, and for use rather than ornament; and it is really pleasing to see how easily it slips through a joint of beef. The fork and steel are made to match. It would save many wry facee, and perhaps hard words, were it in general use. Made by **The Meriden Cutlery Co.**

Nos. 8, 9, 10, 11—Pocket Knives.—HERE'S FOR THE **Boys** AND **Girls!**—These Premiums are among the most pleasing and useful that we have ever offered. Every boy, and girl, too, wants a pocket knife. We give them an opportunity to obtain a most valuable one for merely a little effort. These knives are made by **Messrs. Smith & Clark, Brouxville, N. Y.,** whose work is equal to any done in this country or Europe. No. 8 is a neat, substantial Knife, with three blades and buck-horn handle. No. 9 is a still finer article, with four blades and buck-horn handle. No. 10 is an elegant Knife, with four blades and shell handle. No. 11 is a Lady's Pocket Knife, a beautiful article, with four blades and shell handle.

No. 12.—A Tea Set.—This premium has given the greatest satisfaction, for the last four years. There are six pieces, viz.: *A Coffee-Pot*, two *Teapots*, a *Creamer*, *Sugar*, and *Slop Bowl*—all of beautiful, uniform pattern, new style, with raised and embossed figure work. They are not the common silver-*washed* articles, but the best triple plate, the foundation being white metal, so as not to show, even when the heavy silver coating may chance to be worn off in any spot by long, hard usage.—These sets are made by the **Lucius Hart Manufacturing Co., of Nos. 4 and 6 Burling Slip, New York City,** and are warranted by them to be of the best triple plate; and each piece bears their stamp. Mr. Hart, "the veteran Sunday-school man," has been in the same place and business for nearly a quarter of a century. We have known him and his work for many years, and take pleasure in commending and guaranteeing its value to be as represented. The amount of silver upon plated ware depends wholly upon the will and integrity of the manufacturer. We could give nearly as good-*looking* plated ware for less than half the money.

No. 13.—Casters and Fruit or Cake Basket Combined.—This is a new pattern, both novel and beautiful. It can be used as large, showy Casters, with six cut-glass bottles, or be instantly changed into complete Casters, with Call-Bell, and a separate Cake or Fruit Basket, with a colored glass dish inside. Every one receiving it will be delighted. It is from the same makers as No. 12, of same metal, plating, etc.

No. 14.—Cake Basket.—A new pattern, canoe shaped, nicely chased and very taking. It is from the same makers and of equally good quality as the two preceding premiums; is a *beautiful* table ornament.

No. 15.—Revolving Butter Cooler.—This is a really good and useful article. It is so arranged that a very little ice in the holder under the plate will keep butter cool and fresh for a long time on the table, even in the hottest weather. The cover revolves underneath the plate for use, and over for protection. The whole is in four pieces, which can all be taken apart for washing. From same house as No. 12.

No. 16.—Ice or Water Pitcher.—A large and ornamental article. It is of the same metal, plating, etc., and by the same makers as No. 12. For 35 subscribers at $1.50 each, we will include a round **Salver** of pattern to correspond (value $6); or, for 47 subscribers, a large 16-inch oval Salver (value $14), large enough for two goblets with the Pitcher; and for 53 subscribers, the Pitcher, large Salver, and a pair of beautiful Goblets, silver-plated without, and gilded within (value $38). This complete set is exceedingly desirable, though the Pitcher alone, or that and the smaller Tray, or Salver, will answer a good purpose, both for use and ornament.

No. 17.—One Dozen Teaspoons.—No. 18.—One Dozen Table-Spoons.—These are "figured tips," Olive-leaf Pattern, all of the same metal, plating, etc., and from the same makers as No. 12. They are far *cheaper* than any thing we have found at half the price, and well worth working for.

No. 19.—One Dozen Table-Forks.—The same description and remarks apply to these as to No. 18. We select as premiums only such articles as we can warrant in quality and price. All these articles come from the **Lucius Hart Manufacturing Co.**

No. 20.—Child's Cup.—A beautiful gift for the little *one-year-old*. It is made by the **Lucius Hart Manufacturing Co.** Triple-plated on the outside and gilded on the inside. It never breaks, and will last for many years—indeed, be a life keep-sake.

Nos. 21, 22, 23.—Gold Pens: *with ever-pointed Pencils, in extension, coin-silver cases.* — Premium No. 21 contains the best No. 4 Gold Pen; and No. 22 the best No. 6 Gold Pen, which is the same style, but larger. No. 23 contains No. 7 Gold Pen, in Gold-tipped Ebony Holder. Each pen will be sent in a neat leather case by mail, post-paid. These pens are made by **Geo. F. Hawkes, No. 61 Nassau St.,** and have obtained a wide and good reputation. We have known the maker and his goods for many years, and can recommend them.

No. 24.—Ladies' Fine Gold Pen, in Rubber Case, Gold Mounted, with Screw Extension, and Gold Ever-pointed Pencil. A beautiful present for a lady teacher or friend. Same makers as above.

No. 25.—Lozo Pendulum Board.—A very pleasing article for Boys and Girls (and we have seen not a few "grown up" folks playing with it). It is a neat Walnut Table Case, with rings, balls, hooks, etc., etc. Seven different games can be played on this board. It is easily adjusted upon a table, chairs, piazza, etc., and readily closed and set away when not in use. Pictures and descriptions of it can be obtained by addressing **"Novelty Game Company, Providence, R. I."** As it requires only 18 subscribers at $1.50 each, or 58 at $1 each, to get this $10 Prize, a great many of our young readers can quickly get up a club, and *secure* a Holiday present for themselves.

No. 26.—Amusette.—We believe in *home* entertainment for both young and old people. Our observation is, that the increase of entertaining home games is already doing much to keep not only the boys but their fathers away from drinking and gambling rooms, and other places of evening resort not conducive to good morals. Premium No. 25 is specially adapted to children. This one, the "Amusette," as it is called, will afford interest to the older as well as the younger members of the family, male and female. It only needs a smooth table of any kind covered with a cloth. The play with the balls will develop much of ingenuity and skill, and give a capital study of the laws of motion, force, etc. The price has been reduced from $10 to $6, and our premium will place it in the power of very many to secure this additional source of home amusements. The Amusette is supplied by **E. I. Horsman, 100 William Street, N. Y.,** who will send any desired circulars giving information. It packs in small space and can be safely sent anywhere by express at small cost.

No. 27.—Garden Seeds.—A valuable selection of 40 varieties of the best seeds for a family garden, each parcel large enough for a garden of ordinary size. This premium and the next two are put up for us by **Messrs. B. K. Bliss & Sons,** Seed & Horticultural Warehouse, **23 Park Place** and **20 Murray St.,** whose seed establishment is well known as one of the best in the country. This premium will be of great value and convenience to many, as *we send the seeds post-paid.*

No. 28.—Flower Seeds.—Like No. 27 this is a valuable premium. It consists of **100** different kinds of beautiful flower seeds, all in separate papers, and includes the finer common varieties, and many of the newer and rarer kinds that are costly. *Sent post-paid.*

No. 29.—Very Choice Garden Seeds and Flower Bulbs.—We have taken special pains to have prepared by **Messrs. B. K. Bliss & Sons** a list of seeds and bulbs of the *very choicest kinds*, and the most useful varieties. Though some are rare (and costly), all have been tested and found excellent. Here is an opportunity to obtain a valuable assortment of seeds, as this premium allows the selection from the list below of any that may be desired, to the amount of **two dollars.** If more is wanted, it of course is only needful to secure two or more of the premiums, and select seeds accordingly. *All delivered free;* 1 Pkt. Early Wyman Cabbage, 50.; ½ oz. Marblehead Mammoth, do., 50c.; ½ oz. Improved American Savoy, do., 25c.; ¼ oz. Improved Brunswick, do., 25c.; ½ oz. Premium Flat Dutch, do., 25c.; ½ oz. Improved Red Dutch, do., for pickling, 25c.; ¼ lb. Bliss' Improved Long Orange Carrot, 50c.; 1 pkt. Perpetual Spinach Beet, 25c; 1 pkt. Boston Market Celery, 25c.; 2 oz. Dewing's Improved Early Turnip Beet, 25c.; 1 pint McLean's Little Gem Peas, 50c.; 1 pkt. New Black Pekin Egg-Plant, 25c.; 1 pint Carter's First Crop Peas, 50c.; 1 pint Crosby's Extra Early Sugar Corn, 50c.; 1 pkt. (10 seeds) General Grant Cucumber, 25c.; 1 oz. Boston Market Tomato, 50c.; 1 pkt. Bayard Taylor's Watermelon, 25c.; 1 pkt. Conover's Colossal Asparagus, 25c.; 1 pint New Dwarf Wax Beans, 50c.; 1 pkt. New Egyptian Blood Turnip Beet, 25c.; 1 pkt. Early White Erfurt Cauliflower, 25c.; 1 pkt. Early Simpson Lettuce, 25c.; 1 pkt. New Garnishing Kale, 25c.; 1 pkt. Latakia Tobacco, 25c.; 2 oz. Conn. Seed Leaf Tobacco, 50c.; 1 pkt. Early Paris Cauliflower, 25c.; 1 oz. Finest Cucumber Seed, for pickling, 25c.; 1 pkt. Early Rose Potato Seed (from balls), 25c.; 2 oz. Genuine Hubbard Squash, 50c.; 2 oz. True Boston Marrow, do., 50c.; 2 oz. Turban, do., 50c.; 1 Lilium auratum, or New Gold-banded Lily, from Japan, $1.00; 1 Lilium lancifolium rubrum, Japan Lily, red, 50c.; 1 Lilium lancifolium album, Japan Lily, white, 50c.; 1 doz. Gladioluses, fine mixed varieties, $2.00; 1 doz. Mexican Tiger Flowers, $1.25; 1 doz. Tuberoses, Double Italian, best, $2.00; 1 doz. Hyacinths, double and single in three colors, red, blue, and white (for fall planting) $2.00; 4 doz. Tulips, double and single, early and late (for fall planting) $2.00; 100 Crocuses, fine varieties (for fall) $1.00.

No. 30.—Nursery Stock, Plants, etc.—This premium can be selected *in any thing desired*, from the catalogues of **Messrs. Parsons & Co.,** Flushing, New York, or of **Mr. F. K. Phœnix,** of Bloomington, Illinois. Both are well-known, and very reliable parties, having extensive Nurseries, Greenhouses, Ornamental Trees and Plants, Grape-Vines, Shrubs, etc., etc. Send a stamp direct to either of them, for their regular catalogues. Select $20 worth (or more in proportion, if more names are sent us), and we will send to the canvasser an Order for the amount on either party named above, to be forwarded in fall or spring, as desired.

No. 31.—Set of Field Croquet.—The game of Croquet is so pleasing, and has become so popular, that we believe many will be glad to avail themselves of the opportunity of obtaining this new Premium upon terms as easy as we propose. These sets are beautiful, and from one of the best makers in the country.

Nos. 32, 33, 34.—Sewing Machines. "A good Sewing Machine lightens the labor and promotes the health and happiness of those at home." We offer a choice of three of the best of the leading machines, all of which have been thoroughly tested in our own families, and give entire satisfaction. While all are valuable, each has some excellence peculiar to itself. The **Grover & Baker** Machine is remarkable for the *elasticity of its stitch*, which is at the same time very firm and durable. The structure of the seam is such that, though it be cut or broken at intervals of only a few stitches, it will neither open, run, nor ravel. It sews directly from two spools, without rewinding.....The **Florence** Machine makes different stitches, each being alike on both sides of the fabric. One of its special advantages is that it has *the reversible feed motion*, which enables the operator, by simply turning a thumb-screw, to have the work run either to the right or left, to stay any part of the seam, or fasten the ends of seams without turning the fabric. The **Willcox & Gibbs** Machine excels in the exceeding *simplicity of its construction.* Very little instruction and ingenuity are required to understand the few parts of which it is composed, and their use; and there is no ex-

cuse for getting it out of order, until the parts are fairly worn out. One of its strongest recommendations is the *ease with which it is worked*, taxing the strength of the operator less than other machines. All these machines have constantly increasing sales, showing the public estimate of their value. Either of them will prove a great treasure in any household; worth more than $500. The $500, at 7 per cent interest, would yield, less taxes, about $32. Most families require at least four months of steady hand-sewing a year, costing, if all hired, not less than $24 a month, board included, or $96 a year. With a Sewing Machine, a woman can sew more in one month than in four months by hand. Here is a clear saving of $72. But far above this—the everlasting "Stitch, stitch, stitch," the bending over the work, and the loss of sleep, have brought tens of thousands to early graves. We say to *every* man, get your wife a Sewing Machine, even if you have to sell a favorite horse or an acre or two of land—get the Sewing Machine any way. If you can get one through our premium list—well; but get the machine. —No charge for boxing the machines. They go safely as freight. Send for circulars, giving full instructions, to **Grover & Baker Mf'g Co.,** 495 Broadway, N. Y. **Florence Sewing M'ne Co.,** 505 Broadway, N. Y. **Willcox & Gibbs Mf'g Co.,** 658 Broadway, N. Y.

No. 35.—Washing Machines.—For a long time we have annually tried many new Washing Machines, and "Doty's Paragon," which we have now used nearly five years, is the only one the "help" will use voluntarily. Send for full Descriptive Circulars to **R. C. Browning, 32 Cortlandt St., N. Y.,** or to **Metropolitan Washing Machine Co.,** Middlefield, Conn. It goes cheaply by freight or express.

No. 36—Clothes Wringing Machine.—A very useful, time-saving, strength-saving, clothes-saving implement, that should be in *every* family. The wringing of clothes by hand is hard upon the hands, arms, and chest, and the twisting stretches and breaks the fibres with lever power. With the Wringing Machine, the garments are passed rapidly between elastic rollers, which press the water out better than hand wringing, and as fast as one can pick up the articles. We have given thousands of these premiums, with almost universal satisfaction. They are made by the **Metropolitan Washing Machine Co.,** Middlefield, Ct.

Nos. 37, 38.—Melodeons.—These are excellent and desirable instruments, for the *Home Circle*, for small Churches, for Sunday-schools, for Day Schools, Academies, etc. Instrumental and Vocal Music in a school has a beneficial influence upon the pupils. We have seen the whole tone and character of a school improved by introducing a Melodeon.—Set the pupils to work and they will raise a club of subscribers for this premium. We offer the Melodeons made by Messrs. **Geo. A. Prince & Co., Buffalo, N. Y.,** for we *know* them to be good. A large one in our own Sunday-school room has been in use for *eleven* years, and is to-day just as good as when first purchased, though used from time to time by a large number of persons.——Several clergymen have obtained this premium for themselves, their Churches, or Sunday-school rooms. The clubs of subscribers were quickly raised among the members of their parishes.—— Many others can get a Melodeon for their *home* use. Send a postage stamp to the makers and get their illustrated descriptive circular. These Melodeons will be shipped direct from the manufactory at Buffalo. They can go safely by freight or by express. If an Organ should be wanted instead of a Melodeon, we can supply it for an increased number of subscribers in proportion to the value. We have given these instruments for several years, and we believe they have invariably been greatly esteemed.

No. 39.—Steinway Piano.—Seven Octave, Rosewood Case, Solid Rosewood Desk, Large Front, Round Corners; Overstrung Base, Full Iron Frame, Patent Agraffe Treble, Carved Legs, and Carved Lyre.—This is one of the most elegant Premiums ever offered; regular and only price **$625.** That this magnificent instrument comes from the celebrated establishment of **Messrs. Steinway & Sons Nos. 109 & 111 East 14th St.,** is enough to say; but it is due to these enterprising manufacturers to state that, while their pianos have repeatedly received the First Premiums, by the award of the most competent judges the world can produce, at the Universal Exposition, in Paris, they received the First Grand Gold Medal for American Pianos in all three styles exhibited, viz.: Grand, Square, and Upright. The following official certificate was signed by the President and the five members of the International Jury: "Paris, July 20th, 1867. I certify that the First Gold Medal for American Pianos has been unanimously awarded to Messrs. Steinway by the Jury of the International Exhibition. First on the List in Class X." The Society of Fine Arts in Paris unanimously awarded Steinway & Sons their *only* annual Testimonial Medal for 1867. The President of the Musical Department of that Society reports: "The pianos of Messrs. Steinway appear to me, as well as to all the artists who have tried them, superior to all that have been made to this day in the entire world." The best judges in America say the same. We also speak from personal knowledge, as each of our partners has one at home, and desires no better. This splendid premium may be secured by many persons. Only 520 subscribers are required to do it. Several have obtained this premium during the last year. It will pay for even a year's labor. Classes of young ladies at school might unite in canvassing, and obtain a present for a Teacher, or a Piano for their school-room. We shall be glad to give this premium to a large number. Send to **Messrs. Steinway & Sons** for a *free* circular describing it.

No. 40.—A Good Watch.—The Watches made by the **American Watch Co., Waltham, Mass.,** have peculiarities of excellence which place them above all foreign rivalry. The substitution of machinery for hand labor has been followed not only by greater simplicity, but by a precision in detail, and accuracy and uniformity in their time-keeping qualities, which by the old method of manufacture are unattainable. A smoothness and certainty of movement are secured which proceed from the perfect adaptation of every piece to its place. The extent of the Waltham establishment, the combination of skilled labor, with machinery perfect and ample, enables them to offer watches at lower rates than any other manufacturers. Their annual manufacture is said to be double that of all other makers in this country combined, and much larger than the entire manufacture of England. The mechanical improvements and valuable inventions of the last fifteen years, whether home or foreign in their origin, have been brought to their aid, and the presence of over 400,000 Waltham Watches in the pockets of the people is the best proof of the public approval. We offer a Silver watch, jeweled, with chronometer balance, warranted by this Company as made of the best materials in the best manner, and in pure coin-silver "hunting" case; weight 3 oz. This watch we offer as one of our Premiums, with the fullest confidence. Upon the movement of each of these watches will be engraved, "American Agriculturist. Made by the American Watch Co., Waltham, Mass."

No. 41.—Ladies' Fine Gold Watch.—This elegant Premium will delight our friends who may receive it. Our arrangement with the **American Watch Co.** (see No. 40 above) includes these beautiful gold watches. They are full jewelled, in 18-carat "hunting" cases, warranted to be made of the best materials, and possessing every requisite for a reliable Time Keeper. Upon the movement of each Premium Watch will be engraved "Am. Agriculturist. Made by the Am. Watch Co., Waltham, Mass."

No. 42.—Frank Wesson's Breech-loading Rifle.—This is a capital little rifle, weighing 6½ lbs., 40 inches long including the breech, and an accurate and powerful shooter, to which our attention was recently called by our "great gun" friends, Messrs. Cooper, Harris & Hodgkins, of 177 Broadway. At our first trial, of ten shots, eight were put within an inch of the center of a target 60 yards off, and the other two were within 1½ inches. We stopped then because the bull's-eye was destroyed, and tried twelve shots at 100 yards. Seven of these were within 1 inch of center, and the other five within 2½ inches. The above 22 shots were fired as fast as the marker could plug the holes and get out of the way. (Plain open sights were used. For very accurate shooting with any gun, the globe sight is necessary.) A few trials proved the gun to have great penetration and accuracy at the distance of 400 to 800 yards. With the ready fixed ammunition, (copper cartridges, containing powder, ball, and percussion), the loading is exceedingly simple and rapid. Pulling one trigger throws up the barrel, and ejects the used copper shell, a new one is inserted in an instant, the barrel is pushed down, the cock set—all done in a few seconds—and you are ready to fire again. One has only to carry the cartridges in his pocket, the light rifle, and his game bag.—The usual length of barrel is 24 inches. Longer barrels can be had at an expense of 50c. an inch if wanted by any one.—Send for descriptive Circulars, etc., to the Agent, **M. W. Robinson, 79 Chambers St., New York.** Our premium will be the 24-inch steel-barrel rifle, including 100 cartridges. The recipient will please choose whether the caliber be 32-100, or 38-100, or 44-100. The last named is suitable for heavy game, the first for smaller, and the 38-100 for a medium. The first is hardly large enough for bears, buffalo, or deer, but is ample for anything smaller.

No. 43.—Breech-loading Pocket Rifle.—This remarkable little fire-arm weighs only eleven ounces, yet shoots with great accuracy and power from 30 to 100 yards, or more, and can be loaded and fired five times a minute. It can be carried in a side pocket, and is accompanied by an extension breech, so that it may be used either as a pistol or rifle. It is put up in a neat mahogany case, with 250 rounds of ammunition. The manufacturers are **Messrs. J. Stevens & Co., Chicopee Falls, Mass.,** and the rifles are sold at retail by Messrs. Cooper, Harris & Hodgkins, No. 177 Broadway. This Premium gave great satisfaction last season. ☞ Without the mahogany case, we will give the weapon, all complete, with 100 cartridges, packed in a pasteboard box, on receipt of 18 subscribers, at $1.50 each. For a full description see *American Agriculturist* for Jan. 1869, page 32.

No. 44.—Maynard's Combination Gun—A Breech-loading Rifle and Shot-Gun, or Two Guns in One!—This is a capital gun for those who want a weapon to use either as a rifle or shot-gun. Either barrel can be slipped into the same stock in a moment. The ammunition is peculiar. The strong brass cartridges are loaded at leisure, costing nothing but for the powder and lead, and may be used over and over again for any number of times. One can carry cartridges in his pocket, loaded with different sizes of shot, and slip in and fire any size wanted for large or small game. At our first trial with the rifle barrel, we twice over put 12 successive balls within an inch of the center of the mark, at the distance of 60 yards, and within 1½ inches of the center at the distance of 100 yards, and did nearly as well at still greater distances. We want nothing better for accuracy and penetration. The shot barrel carried admirably. Our Premium consists of a *complete* outfit, including an extra fine Stock, a 26-inch rifle-barrel, 35-100 bore, with elevating Peep Sight, Cartridge Retractor, Double Bullet Mold and Neck Cutter, Loader, Rod, Brush, Cone Wrench, Extra Cone, Rag-holder, and 50 Cartridge-cases, Platina Bushing, Front-shaded Bead Sight; *Shot Barrel*, with 50 Shot Cartridge-cases, Rod and Brush, Wad-cutter, and Shot-loader, Powder-Flask, and extra Charger. For further particulars send for a Circular to the **Massachusetts Arms Company, Chicopee Falls, Mass.**

No. 45.—Double Barrel Gun; or Fowling Piece.—These guns are the genuine London "Twist" barrel, Patent Breech, Bar Lock, ebony ramrod, and in all respects desirable. Their calibre and length of barrel vary, and may be ordered to suit the kind of shooting to be done. They are furnished for this premium by **Messrs. Cooper, Harris & Hodgkins, 177 Broadway,** well known as one of the most reliable and best houses in their line of business, and they highly recommend this particular gun, and guarantee it in every respect. It is from one of the oldest and most favorably known English manufacturers. The price is not put on in fancy carving and plating for show, but in the gun itself. This premium includes Gun, Powder-Flask, Shot-Pouch, and Wad-Cutter.

No. 46.—Chest of Good Tools.—We continue through the special favor of **Messrs. Patterson Brothers, of 27 Park Row,** the offer of chests of the *very first quality of tools*, of kinds and prices named below. Similar tools could be purchased for half the money, but these are all A. No. 1, for practical use, and worth a dozen common articles. For this we have the guarantee of Messrs. Patterson, which is amply sufficient for us, and for all who know them. Any of these tools may be ordered *of them*. We make up only a single premium, which contains a full assortment for all common purposes. The tools are of regular size, and but few additions would be required for a Journeyman Carpenter. The assortment we offer is as follows: 1 Tool Chest, $8; 1 Jack Plane, $1.75; 1 Smooth Plane, $1.50; 1 Fore Plane, $2.25; 1 Handsaw, 22 in., $1.75; 1 Compass Saw, 10 in., 50c.; Compass, 6 in., 37c.; 1 Adze-eye Hammer, No. 4, $1.25; 1 Hatchet, No. 2, 90c.; 1 Draw Knife, 7 in., $1.12; 1 Try Square, 6 in., 70c.; 1 Bevel, 8 in., 75c.; 1 Chalk Line and Spool, 30c.; 1 Mallet, 30c.; 1 Pair of Pliers (steel), 5 in., 60c.; 1 Pair of Calipers, 4 in., 36c.; 1 Brace, No. 2, $2.25; 1 Auger bit, ea. ¼ in. 30c.; ½ in. 32c.; ¾ in. 45c.; 1 in. 60c.; 1 Center bit, ea. ½ in. 21c.; ¾ in., 23c.; 1 in., 25c.; 1¼ in., 35c.; 1½ in., 40c.; 6 Gimlet bits, assorted, 90c.; 3 Gimlet bits, assorted, 33c.; 1 Screw-driver bit, 25c.; 1 Flat Countersink, 25c.; Rose, do., 25c.; Snail, do., 25c.; 1 Octagon Reamer, 30c.; 1 Taper bit, 30c.; 1 Screw-driver in Handle, ea. 3 in., 30c.; 6 in., 50c.; 1 Gouge in Handle, ea., ½ in., 50c.; 1 in., 70c.; 1 Chisel in Handle, ea., ¼ in., 30c.; ½ in., 35c.; ¾ in., 40c.; 1 in., 50c.; 1¼ in., 60c.; 1 Framing Chisel, ea., ¾ in., $1; 1 in., $1.10; 1¼ in., $1.20; 1 Auger, ea., ¾ in., 70c.; 1 in., 80c.; 1¼ in., 90c.; 1 Set Brad-awls in Handles, $1.35; 1 Rule, 2 feet, 25c.; 1 Saw File, ea., 4 in., 11c.; 5 in., 17c.; 1 Flat File, 8 in., 30c.; 1 Wood Rasp, 50c.; 1 Soldering Copper, 60c.; Solder, Nails, etc., $1.25;=**$45.00.**

Nos. 47, 48.—Mathematical Instruments for Draughting, Drawing, etc.—Very convenient, not only for Architects and Mechanics, but for farmers and others, and for Boys and Girls. These are neatly fitted in beautiful Rosewood Cases, having dividers with flexible joints, and points, semi circles, pencil and penholders, rulers, etc., etc. All the pieces in No. 47 are finished in brass and steel; those in No. 48 are German-silver and steel. The pieces are the same in each, but No. 48 is of extra beauty and workmanship.

No. 49.—Charles Pratt's Astral Oil supplies a great Public Want for a Safe, Reliable, Illuminating Oil. It is manufactured by him and packed only in the Guaranty Patent Cans, expressly for Family Use. It has more body, and an equal quantity will burn longer and give more light than other oils. The constant recurrence of explosions, fires, devastation and death,

resulting from the use of what is called Kerosene Oil,—but really a mixture of Benzine, Naphtha and other highly inflammable substances, the use or sale of which is an infringement of United States Law,—has induced us to place this article on our premium list as a humanitarian as well as a useful act. The Board of Health of the city of New York have examined scores of samples of Oil obtained from as many different dealers in this city, and nearly all have been found far below the government standard and entirely unfit for use. This "Astral Oil" is from the House of **Chas. Pratt, 108 Fulton St.** Mr. P., a merchant of high reputation, will keep up the article to its present standard. It has been tested and received the endorsement of the highest scientific authorities in the land. Among them are E. N. Horsford, late Rumford Prof. Harvard University, etc., and R. Ogden Doremus, Prof. Chem. in the College of the City of New York. Dr. G. Tagliabue says: "I have to pronounce the 'Astral' Oil, the safest Illuminating Oil in the market." The Guaranty Cans are made of tin, and sealed so that none of the oil can be removed without breaking the seal, thus securing safety in transportation. The can is inclosed in a strong wooden case, and may be returned for refilling. For 19 subscribers at $1.50, or 65 at $1.00, we will send a case containing **12** one gallon Guaranty Cans, which may be distributed.

Nos. 50, 51.—Mercurial Barometers.—WOODRUFF'S PATENT, made by **Chas. Wilder, Peterboro, N. H.** These are the most convenient and portable Mercurial Barometers made. (Send to Mr. Wilder for a circular.) The peculiar form of Mercury cup invented by Mr. Woodruff renders these Barometers so portable that Mr. Wilder *guarantees their safe delivery*, if not to be sent beyond the Rocky Mountains. The instruments are about 3 feet long, differing mainly in the style of case, both being supplied with *Thermometer* and *Vernier*. A Barometer is to farmers, or others on land, what it is to sailors at sea—an indicator of the weather to be looked for. *To us* this instrument is of more real value, in a business way, than the interest on several hundred dollars. *It more than pays its cost* EVERY YEAR!

No. 52.—Buckeye Harvester Mower.—The Buckeye Mower is so widely and favorably known that we need not describe it particularly. In 1869 this machine competed at only two large trials, one at Louisville, Ky., where it received the First Prize Grand Gold Medal, and the other at Amherst, Mass., where it received Two First Prize Grand Gold Medals. **Messrs. Adriance, Platt & Co., 165 Greenwich St., N. Y. City,** will send any one a circular, giving full description, engravings, etc. Many a farmer can secure this premium by a very few days' or odd hours' and evenings' canvassing for subscribers. A few can unite their efforts, each getting a part of the subscribers, and own the machine in common.—Ten subscribers a day for 15 days would secure it ($125.)—Many can easily raise the necessary club at Town Meetings, Fairs, Elections and other gatherings, or during evenings. The Buckeye Self-Rake Reaper has been proved to be a very valuable machine and is at least equal to any Reaper and Raker in the market. Those who secure this Mower can afterward secure the Reaper, which can be attached.

No. 53.—Patent Cylinder Plow.—We hear very good reports from those who have heretofore received this premium. It is an Ohio invention, but is manufactured by the well-known firm of **R. H. Allen & Co., 189 & 191 Water-st., New York,** to whom application may be made for descriptive circulars, etc. The kind we offer for premiums is the "Two-horse size, cutting a furrow 12 to 14 in. wide, and 5 to 8 in. deep." It is provided with a wheel and with a "skim plow," like the double "Michigan plow."....For 29 subscribers at $1.50, or 97 at $1.00, we will give the Heavy Two-horse, 14 to 16 in. wide, and 6 to 9 in. deep, $19.00.... For 32 at $1.50, or 100 at $1.00, the Two to Three horse, 16 to 18 in. wide, 8 to 11 in. deep, $21.00. For 22 subscribers at $1.50 or 75 at $1.00, the One-horse, 10 to 12 in. wide and 4 to 7 in. deep, $15.00.

No. 54.—Collins & Co.'s Cast-steel Plows.—These excellent plows are made by a patented process, of cast-steel recast (not rolled), tempered and polished like a good axe. They will scour in the softest soils, and are great favorites on the prairies. The canvasser has his choice of eight plows named in the manufacturer's circular at the same price ($25), of which we particularly recommend "C, No. 3" for general use; "B, No. 12" for stubble only; and "E, No. 12" for turf only. Send for circular, giving full particulars, to **Collins & Co., 212 Water-street, New York.**

No. 55.—Comstock's New Horticultural Implements Combined.—*The Hand Cultivator and Onion Weeder* will do the work of *six men* with hoes. It pulls the weeds and thoroughly pulverizes the soil. It is as much superior to the hoe for all small drill culture as the mowers and reapers are to the scythe and cradle. The *Seed Sower* is the most perfect small seed drill we have seen. It sows Beet, Parsnip, and other difficult seeds, with the greatest regularity, and it is specially adapted to sowing Onion seed at the rate of 4, 5, or 6 pounds to the acre. It is readily attached to the Cultivator. The *Strawberry Cutter* takes off the runners and at the same time cultivates between the rows. After another year's trial of these implements on our own grounds, and the entire satisfaction they have given to all who ordered them of us as premiums, we offer them again, and recommend them as being all the inventor claims,—"the best in the world." For 19 subscribers at $1.50, or 65 at $1.00, we will give the Cultivator and Weeder and Strawberry Cutter, price, $12.00.....For 22 at $1.50, or 75 at $1.00, we will send the Cultivator and Weeder, and Seed Sower, price, $15.00....For 27 at $1.50, or 90 at $1.00, we will send *all* these implements complete, price, $18.00. Manufactured by **Comstock Brothers, East Hartford, Conn.,** who furnish descriptive circulars to all applicants. See cuts in *American Agriculturist*, page 127, 1869, and page 118, 1870.

No. 56.—The American Submerged Pump.—Every family needs a reliable pump, capable of raising water easily and rapidly from the bottom of the well, be it deep or shallow,—one that is durable, that will not get out of order, or be liable to injury from frost or gravel. When we add to these the qualities of a powerful force-pump, ability to throw water 60 or 70 feet from a hose-pipe, and a construction which renders freezing an impossibility, though it stand out of doors, we think we have a family and farm pump which we can conscientiously recommend. No. 1 will raise 20 gallons of water a minute. This is the pump offered in the list. No. 2, 30 to 35 gallons. No. 3 will raise 2 bbls. per minute from an ordinary well; and there are larger sizes. Either of these pumps will be furnished for the same number of subscribers required for other Premiums of the same price. The pumps have what is called water packing, that is, no packing at all; the pump is set in the well, and nothing but the perpendicular brake and spout appear above the platform. For further information, Circulars, etc., address **Bridgeport Manufacturing Co., Bridgeport, Conn.,** or **55 Chambers St., New York.**

No. 57.—Page's Patent Pump and Sprinkler.—A Hand Watering-Pot, a Greenhouse Syringe, a light Force-Pump, and Garden-Engine. It is very simple in construction, light to carry, easy to operate, and adapted to many uses—convenient for washing windows or blinds, carriages, horses; watering plants, etc. Throws a small stream with considerable force about 40 feet. It is so arranged that the stream can be instantly changed to drops, spray, or mist. *For circulars, etc., address the patentee and manufacturer*, **N. Page, Jr., Danvers, Mass.**

No. 58.—Family Scales.—These scales, combining the advantages of counter and platform scales, are peculiarly adapted to household purposes. They weigh from ½ ounce to 240 lbs. They have a scoop, or pan for weighing flour, sugar and other house stores, and a platform for heavier articles, and are just such an apparatus as is needed for in-door or out-door use, occupying less than 2 feet square. These scales are manufactured by the well-known **Fairbanks & Co., No. 252 Broadway, New York,** whose weighing apparatus has long ranked as the standard in all parts of the country. Send to them for circulars, if desired.

No. 59.—Crandall's Improved Building Blocks furnish a most attractive amusement for children. Churches, Dwellings, Barns, Mills, Fences, Furniture, etc., in almost endless variety, can be built with them, and the structures remain so firm as to be carried about. For developing the ingenuity and taste of children they are unequaled. The Blocks are put up in neat boxes, accompanied by a large illustrated sheet giving various designs of buildings, etc., etc. This is one of the most successful toys ever invented. Twenty-five thousand dollars' worth were sold last year by *Orange Judd & Co., Sole Agents.*

No. 60.—Pocket Lanterns.—A very ingenious and valuable Yankee invention—a complete *Lantern*, yet it can be folded into a parcel 3 by 4 inches long, and ¾ of an inch in thickness; it contains 3 little sperm candles, matches, etc., always ready for use. Made by the **Merriam Manf'g Company** (Julius Ives & Co., Agents, No. 37 Barclay St., New York).

No. 61.—New American Cyclopædia.—We cannot commend this great work too highly. We wish it could be placed in every family in the country. Scholars at our Academies and Seminaries, and members of Library Associations, can easily unite their efforts and secure it. Young men should devote evenings and spare hours to canvassing for this magnificent and useful premium for their own use. Published by **D. Appleton & Co.,** 90 Grand Street, N. Y. ☞ The Cyclopædia *is a whole library of itself*, consisting of *sixteen* very large octavo volumes, well bound, averaging **800** large, two-column pages in each book. They treat upon over **25,000** different subjects. It is hardly possible to name any subject, any country, any person of note, in past or recent time, concerning which pretty full information may not be found in the Cyclopædia alphabetically arranged; worth a year's effort in raising subscribers.

No. 62.—The Great Dictionary.—WORCESTER'S LARGE, PICTORIAL, UNABRIDGED EDITION, containing **1,854 three-column pages,** with a multitude of illustrative engravings. (The work is a large quarto volume.) Most of the thoroughly educated men of the country consider this as by far the best Dictionary in the English Language. It gives the spelling and pronunciation of every word in the language with full explanations, and as a source of general information stands next to the Cyclopædia. The Dictionary can be called for at our Office, or be sent by express or otherwise, to any part of the country. It should be in every family. It is published by **Brewer & Tileston, Boston.**

Nos. 63, 64.—The Eumelan Grape.—This remarkable grape is now attracting much attention, being a beautiful black grape of the first quality, and ripening some time before the Delaware. It has already been planted in many different sections of the country, from the Atlantic to west of the Mississippi, and its success has been most flattering. It has proved, generally, vigorous and hardy. The quality of the fruit is, in our judgment, as good as any variety with which we are familiar, except it be the Iona. We are convinced that this grape is worthy of general trial, and we shall take much interest in seeing its true merits developed. We have made arrangements with Messrs. Hasbrouck & Bushnell, of Iona, near Peekskill, N. Y., who have the original stock of the vines, to supply us with No. 1 and Extra Vines for Premiums. These vines will be of really No. 1 and extra quality, and will be sent by mail, postage paid, or boxed, by express, the receiver paying express charges only. Orders received too late for sending this fall will be filled as soon as it is safe in the spring.

No. 65.—Double Harpoon Horse Hay-Fork.—Any good Horse Hay-Fork is almost a necessity in these days of high wages; it is one of the real labor-saving implements of the day, and that farmer who fails to adopt it, will fail to reap the *profit* for his labor which he ought to have. Harris' Double Harpoon Fork is a most excellent one, as we know by experience and observation, and we therefore place it in our Premium List. Let any hay grower, who is too doubtful about the value of such an implement to invest money in it, gather a list of 18 subscribers this fall or winter, and get an implement free, and our word for it, he will feel well repaid when the busy hard work comes on in the hay field. Descriptive Circulars will be sent to all applicants by the **"Pennock Manufacturing Company," Kennett Square P. O., Chester Co., Pa.**

Nos. 66 to 76.—Volumes of the American Agriculturist (Unbound).—These amount to a large and valuable Library on all matters pertaining to the Farm, Garden, and Household, and contain more varied information on these subjects than can be obtained in books costing three times as much. The price of the volumes is $1.50 each, at the Office, or $1.75 if sent by mail, as they must be post-paid.——They are profusely Illustrated, the engravings used in them having alone cost at least $60,000. Those obtaining premiums for less than thirteen volumes can select any volumes desired, from XVI. to XXIX. inclusive. For ordinary use, the sets of numbers unbound will answer quite well.

Nos. 77 to 87.—Bound Volumes of the Agriculturist.—These are the same as Nos. 66 to 76 above, but are neatly *bound* in uniform style, and cost us more for binding and postage. Sent post-paid.

Nos. 88 to 99.—Good Libraries.—In these premiums, we offer a choice of **Books** for the **Farm, Garden,** and **Household.** The person entitled to any one of the premiums 88 to 99 may select any books desired from the list of our books published monthly in the *American Agriculturist*, to the amount of the premiums, and the books will be forwarded. Post or Express *paid*. $25 or $50 worth of books pertaining to the farm will give the boys new ideas, set them to thinking and observing, and thus enable them to *make their heads help their hands*. Any good book will, in the end, be of far more value to a youth than to have an extra acre of land on coming to manhood. ☞ Let the Farmers of a neighborhood unite their efforts and through these premiums get an agricultural Library for general use.

No. 100.—General Book Premium.—Any one sending 25 or more names may select Books from our list to the amount of 10 cents for each subscriber sent at $1; or 30 cents for each name sent at $1.20; or 60 cents for each name at $1.50. *This offer is is only for clubs of 25 or more. The books will be sent by mail or express, prepaid through by us.*

OCTOBER, 1870.

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For Gardening, Housework, etc., etc. A perfect protection for the hands, making them soft, smooth, and snowy white. A certain cure for Salt-Rheum, Chapped Hands, etc. Ladies' short, $1.50; Gauntlets, $1.75 per pair. Gents' short, $1.75; Gauntlets, $2.00 per pair. Sent by mail on receipt of price. by GOODYEAR'S I. R. GLOVE M'F'G CO., No. 205 Broadway, New York, Manufacturers of all kinds of Rubber Goods.

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See June Number *American Agriculturist*, page 237.

A. BALLARD & SON, 32 & 34 Vesey St., New York.

ON REMITTANCE OF $12.00

We will send to a Club of Ten Smokers, warranted genuine Meerschaum Bowls of medium size in cases with Weichsel stems and Amber bits (worth retail $6.00) for $5.00 each, allowing to canvassers $8 in cash from the full amount of $50.

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We buy and sell for cash—	**Macy** has it.
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Having just completed our new manufactory containing new and improved machinery, and all the appliances found necessary during our experience of nearly thirteen years in the manufacture of Roofing Materials, we desire to furnish samples to Builders, Roofers, General Merchants, and others, of our

IMPROVED ROOFING MATERIAL,

which is ENTIRELY DIFFERENT FROM ANY OTHER, and is TEN TIMES STRONGER than any Composition Roofing in use.

An examination of this material will satisfy competent judges that it is in every respect a substantial and durable fabric, made upon correct principles, perfectly adapted to the purpose, and totally unlike the numberless cheap and flimsy articles heretofore sold for Roofing purposes; while owing to our extensive manufacturing facilities we can supply it for about the same price.

We also manufacture from the fibrous mineral asbestos a

FIBROUS ROOF COATING,

prepared ready for use, which can be applied with a brush, and forms an *Elastic Water-proof Felting*, on any surface; by use of this Coating, old and leaky Roofs can be made serviceable for many years.

These materials can be readily applied by any one. Descriptive Pamphlets, Testimonials, Prices, etc., by mail.

The Roof of the Agriculturist Building is coated with these materials, which have so far proven satisfactory.

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H. W. JOHNS, 78 William St., New York.

Manufacturer of Asbestos Roofing, Roof Coating, and Cement Roofing and Sheathing Felts, Preservative Paints, etc. Asbestos, crude, crushed, and ground.

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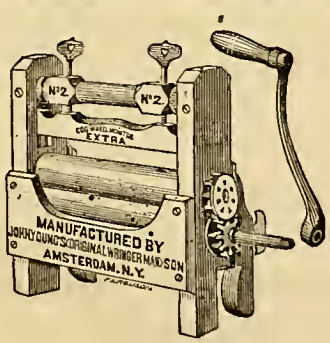

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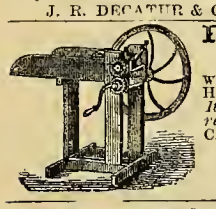

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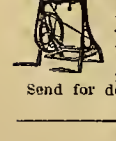

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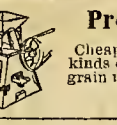

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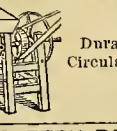

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GENTS: I have one Eumelan Vine, which I purchased of Dr. Grant when he first commenced disseminating them. He desired me to take the agency for the vines at that time, but I did not like to recommend to my friends what I could not vouch for personally. The vine grew three canes the second season, each one about twelve feet, and bore several splendidly formed bunches of fruit of finest quality. I am now fully satisfied with the Eumelan, and can conscientiously introduce the same, if you will give me the agency for this place, believing it a great acquisition.

Yours respectfully, TITUS SHEARD.

CLYDE, Ohio, Sept. 6th, 1870.

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I have thousands of grape-vines growing, but none so remarkable as the Eumelan sent me for trial by Dr. C. W. Grant. To be more vigorous would be considered an objection, and in healthfulness and productiveness it is equal to any of my twenty varieties. The fruit ripens with me before the Delaware, and is the best black grape I have ever seen. My vineyard now contains 1,000 Eumelans, and I intend planting more next spring. How can you furnish the vines? There will be many wanted in this vicinity, and all along the south shore of Lake Erie.

Yours truly, M. A. STEVENSON.

The EUMELAN was awarded the following first premiums for quality during the fall of 1869:

Pennsylvania Horticultural Society (Phila.)	Sept. 13-16
Ohio State Fair (Toledo)	Sept. 13-16
New York State Fair (Elmira)	Sept. 13-16
Geneva Horticultural Society (Geneva, N. Y.)	Sept. 25-26
Hammondsport Grape Exhibition	Sept. 29-30
N. Y. State Grape-Growers' Exhib'n (Canandaigua)	Oct. 5- 6
Ohio Grape-Growers' Association (Cleveland)	Oct. 13-14
Lake Shore Grape-Growers' Assoc'n (Eric, Pa.)	Oct. 15-16
American Institute	Sept. 25, 1870

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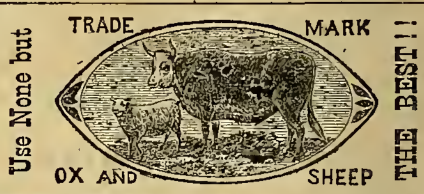

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HEAD OF PETTYPET.—FROM LIFE BY EDWIN FORBES.—*Drawn and Engraved for the American Agriculturist.*

Pettypet represents, in very high perfection, the very best points of the Channel Island cattle, produced by mingling of the Guernsey and high-bred Jersey blood. She was raised by Mr. James P. Swain, and is regarded by him as one of the best animals he ever bred. On the side of the dam she is nearly pure Guernsey, her dam, Pet, being out of Katie 2d, by a Guernsey bull, of the N. Biddle stock. Katie 2d's dam was Katie, and her sire Echo, imported from Guernsey by Thadeus Davids. Katie was out of Mr. Swain's old imported cow Guernsey, the mother of a line of the greatest milkers and butter makers we ever knew, by a bull called Colt Alderney, whose dam was the Alderney cow Curl-horn, imported by Mr. Swain, and his sire a bull bought of Roswell Colt, which came from the Island of Guernsey. So much for the Guernsey blood with one-thirty-second of Alderney, whatever that may be. The sire of Pettypet was Bashan, imported by R. W. Cameron, a nearly perfect type of the high-bred Jersey. This animal has impressed his characteristics upon his stock to the third and fourth generation with almost unerring certainty, and to-day we think a dash of Bashan blood worth more in a fancy animal than a cross of any other choice strain. His points were great style, beauty of form and carriage, superb head and horns, which were delicate, well set up, pointing forward, and black tipped, fine underpinning, (bony, but strong,) a deep carcass, well ribbed back, a very fine tail, with black switch, black mouth and tongue, very soft hide, with two distinct kinds of hair in his coat, changing his color more or less with the season, but being on the whole of a rather dark fawn, with hairs coming through tipped with gray, with very strong mealy ring about the muzzle. (*See p.* 446.)

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Plants Named.—T. H. B. Baker, Pekin, Ind. The common Verbena, or Vervain of Europe, *Verbena officinalis*. Sparingly naturalized as a weed...."J. D.," North Stamford, Ct. *Stuartia Virginica*, for which we have no common name. It belongs to the Camellia Family, is a native of the Southern States, and one of the most beautiful shrubs in cultivation....I. Dick, Marshall, Ohio. The Horse-Nettle, *Solanum Carolinense*, than which there is no worse weed. Kill it if you can....T. Poston, Jefferson Co., Ind. Green Foxtail, *Setaria viridis*. Grasses are not apt to hybridize....NOTICE.—We are always glad to name plants for our friends, but they should take a little pains in sending them. It is difficult to name plants from the leaves only, unless there is something very marked about them. We cannot undertake to name varieties of Verbenas and other florist flowers, of which numbers of new ones appear every year. Dry the specimens, comprising leaf, flower and seed, under pressure before putting them in a letter. Fresh plants should be put, with a little damp moss or cotton, in a box that will not be crushed in the mail.

Calendar for December.

Day of Month.	Day of Week.	Boston, N. England, N. York State, Michigan, Wisconsin, Iowa, and Oregon. Sun rises.	Sun sets.	Moon sets.	N. Y. City, Ct., Philadelphia, New Jersey, Penn., Ohio, Indiana, and Illinois. Sun rises.	Sun sets.	Moon sets.	Washington, Maryland, Virginia, Kentucky, Missouri, and California. Sun rises.	Sun sets.	Moon sets.
		H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.
1	T	7 10	4 29	0 43	7 5	4 34	0 45	7 0	4 39	0 46
2	F	7 11	4 29	1 43	7 6	4 33	1 43	7 1	4 39	1 44
3	S	7 12	4 28	2 43	7 7	4 33	2 42	7 2	4 32	2 42
4	S	7 13	4 28	3 40	7 8	4 33	3 39	7 2	4 38	3 37
5	M	7 14	4 28	4 39	7 9	4 32	4 36	7 3	4 38	4 34
6	T	7 15	4 28	5 38	7 10	4 32	5 35	7 4	4 38	5 31
7	W	7 16	4 28	rises	7 11	4 32	rises	7 5	4 38	rises
8	T	7 17	4 28	5 8	7 12	4 32	5 13	7 6	4 38	5 18
9	F	7 17	4 28	5 53	7 13	4 32	5 58	7 7	4 38	6 4
10	S	7 18	4 28	6 45	7 14	4 32	6 50	7 8	4 38	6 56
11	S	7 19	4 28	7 41	7 15	4 32	7 49	7 9	4 38	7 54
12	M	7 20	4 28	8 46	7 15	4 32	8 50	7 9	4 39	8 54
13	T	7 21	4 28	9 50	7 16	4 33	9 53	7 10	4 39	9 57
14	W	7 22	4 28	10 56	7 16	4 33	10 58	7 11	4 38	11 0
15	T	7 22	4 29	morn	7 17	4 33	morn	7 12	4 39	morn
16	F	7 23	4 29	0 3	7 18	4 33	0 4	7 12	4 40	0 6
17	S	7 24	4 29	1 14	7 18	4 33	1 14	7 13	4 40	1 14
18	S	7 24	4 29	2 27	7 19	4 34	2 25	7 14	4 40	2 24
19	M	7 25	4 30	3 41	7 20	4 34	3 33	7 14	4 41	3 36
20	T	7 25	4 30	4 53	7 20	4 35	4 54	7 15	4 41	4 50
21	W	7 26	4 31	6 14	7 21	4 35	6 10	7 15	4 42	6 5
22	T	7 26	4 31	sets	7 21	4 36	sets	7 16	4 42	sets
23	F	7 27	4 32	5 57	7 22	4 37	6 8	7 16	4 43	6 8
24	S	7 27	4 33	7 6	7 22	4 37	7 11	7 17	4 43	7 16
25	S	7 28	4 33	8 16	7 23	4 38	8 20	7 17	4 44	8 25
26	M	7 28	4 33	9 24	7 23	4 39	9 27	7 17	4 44	9 30
27	T	7 28	4 34	10 30	7 23	4 39	10 32	7 18	4 45	10 34
28	W	7 29	4 35	11 34	7 23	4 40	11 33	7 18	4 46	11 34
29	T	7 29	4 36	morn	7 24	4 40	morn	7 18	4 47	morn
30	F	7 29	4 37	0 33	7 24	4 41	0 33	7 19	4 47	0 33
31	S	7 30	4 37	1 31	7 24	4 42	1 30	7 19	4 48	1 28

PHASES OF THE MOON.

MOON.	D.	BOSTON. H. M.	N. YORK. H. M.	WASH'N. H. M.	CHA'STON H. M.	CHICAGO. H. M.
Full.....	7	9 55 ev.	9 43 ev.	9 31 ev.	9 19 ev.	8 49 ev.
3d Quart..	15	4 27 ev.	4 15 ev.	4 3 ev.	3 51 ev.	3 21 ev.
New Moon	22	7 35 m.	7 23 m.	7 11 m.	6 59 m.	6 29 m.
1st Quart.	29	11 54 m.	11 42 m.	11 30 m.	11 18 m.	10 48 m.

AMERICAN AGRICULTURIST.

NEW YORK, DECEMBER, 1870.

The short days are growing shorter, the cold nights colder. We draw our chairs nearer the fire by day, and an extra blanket over us by night. We must not forget that the furnaces that keep our animals warm are fed by fodder, and that warm quarters are as great a comfort to them as blankets are to us. The poor beasts, that shiver the long nights through behind the stacks of corn fodder, really cost the farmer far more to keep, than if housed and fed on the best of hay. This practice involves a loss in every way—fodder is wasted, vastly more is consumed, the manure is lost, the cattle are pinched, some perish, others come through lousy and "spring poor," and are not in good order again before June. We know there are few such farms, and they are happily growing fewer; but there are thousands of farmers who fodder on the ground; tens of thousands whose cattle never saw a stall; and hundreds of thousands who make but a mere fraction of the manure they might. When the comfort of the animals and the profit of the owner are so obviously coincident, it is a wonder that men do not care more for both. The season has been a peculiar one; the hay crop is short, and in many parts of the country hay is likely to be high. The mowing lands have not only been parched by the drouth, but farmers have been forced to feed them off close, and this involves, almost surely, a short crop next year. To remedy this, we have sowed corn for fall fodder, and rye for fall and spring pasturage, and more turnips than common. To remedy it still further, we must make twice the usual quantity of manure this winter and apply it upon land intended for corn, potatoes, and roots.

We are near the close of a year which will be long known as the one of the great drouth. In many parts of the country no such severe nor long continued period of dry weather has been known since meteorological records have been kept; and "the oldest inhabitant" has neither recollection nor tradition of a parallel summer to adduce. There was an anticipation of a short fruit crop on account of the severity of the winter in some sections, and of late frosts; but never were gloomy forebodings more thoroughly dispelled, for the crop of almost all of our more important fruits has been very large. The drouth arrested the growth of late potatoes, and reduced the yield of corn a little. Hay is decidedly a short crop, but a large supply of sound corn and roots has on the whole done much in New England and New York to supplement it. The usual abundance for man and beast is essentially curtailed on some eastern farms, which necessitates economy, and a reduction of stock. Still, there is no prospect of suffering; and if cows are cheap now, they will be dear again in the spring, which indeed is poor comfort for those who have to sell and expect to buy.

December, according to the pleasant usage of our ancestors, to the natural promptings of kindly natures, as well as according to the universal practice of Christendom, is the period of the year when men give most freely from basket and store to those not so bountifully supplied, or to those bound by ties of association, friendship, and consanguinity. It is a beautiful custom, giving great happiness if unselfishly carried out, and fast becoming characteristic of American life as it always has been of that of the rest of the Christian world. The strictest Puritan now no longer fears the keeping of Christmas as a papal encroachment, and the most fervent Catholic enjoys it none the less because Protestants keep it too. If all the readers of the *Agriculturist* greet the new year, having the experimental knowledge of the fact that "it is more blessed to give than to receive," how many happy people there will be in the world!

Hints about Work.

Manure making, as hinted above, is one of the most important labors of the season. For material to mingle with the dung of cattle large and small, we have straw, swamp grass, muck, forest leaves, dry earth, sawdust, and sand.

Leaves may be gathered so long as the snow does not cover the ground, and it will pay to keep men and teams at work hauling them. We value ashes, and think chip manure chiefly valuable on account of the ash constituents which it contains. Leaves of forest trees contain a very much larger percentage of ash than does the wood or even the bark; and of course they are proportionally superior to sawdust, except that they are not so easily handled, nor are they quite so good as absorbents.

Buildings.—Barns, and especially stables, should be made snug and tight, so that snow will not blow in. Old barns, hen houses, etc., may easily be made warm by stuffing the sides between the inner and outer boarding with straw or litter.

Stables should not only be warm, but tight. When old houses are torn down or renewed, the little old sashes are often cast aside or sold. Hold on to them, or buy some for stables, chicken houses, and such like uses. There is no less economy than comfort in light stables, in which, however,

Ventilation should never be neglected. It is equally important in the stable as in the bedroom; and in closing cracks and shutting up sheds there is often danger that stables, especially those under the barn, be made so close that the animals will suffer. Some will be found ailing and off their feed from no obvious cause, and probably the fact that the air is bad will occur to no one. Chickens in too close houses often drop, asphyxiated, from their roosts, and revive when coming into the purer air on the floor, but sometimes die.

Live-Stock of all kinds need the eye of the master daily, to see that they are kept clean, that the stalls and pens are cleaned out and dry, that they have regular feed and water in proper quantity.

Horses are better for not being blanketed, but may have linen dusters thrown over them to keep dust out of their coats. Colts and all should be groomed daily; and they ought to have some grain daily, even though they are doing no work. When horses come from work or sharp driving, rub them down with straw, and according to the labor they have had, spend 2 to 10 minutes in hard rubbing, warming up and drying the coats. Then cover with large woollen blankets for an hour. Keep the shoes caulked all the time, and have them well sharpened up if an icy time occurs.

Cows.—It is almost criminal to dry a cow off because one is too lazy to milk. Milk to within six weeks of calving, before beginning to dry a cow; that is, if the chief value of the cow is to give milk.

Young Stock should have the range of a good, big, warm yard, with fodder racks about in it, or under the sheds, and they should have good warm stables or sheds secure from snow and wind.

Swine.—It is not often profitable to feed hogs after the weather is right cold. Kill, unless you are watching the market, as soon as they are fat enough, without reference to the moon. Get ready during a north-east rain or snow storm, and be ready to slaughter when the wind changes and we get clear cold weather.

Sheep.—Absolute regularity in feeding is to be aimed at, and the flock must be so divided that the stronger will not get more than their share. It is as bad for them as for the underlings. The latter have at least a good appetite, the former often become surfeited and fall off in condition accordingly. Give sheep always plenty of hay or straw, and an abundance of bedding, but keep in some portion of the yard and shed a hard standing place where they can stand or lie and cool their feet, which often become heated if the sheep are obliged to stand all the time upon soft well-littered ground.

Bedding for horses and cattle may be used in great abundance, and yet not rapidly consumed, if it be carefully shaken out, and only the foul portions removed. In cold weather plenty of bedding is a great comfort. We prefer a mixture of leaves and straw cut a foot long for horses, and sawdust and leaves for cows.

Protection to Cellars.— Place boards against any portion of the sills or weather-boarding of buildings, the cellars of which need banking around to keep out the frost. It is only necessary to be perfectly sure that no frost shall enter the cellar to do any harm; and it is worth while to bear in mind that too much earth will do no harm. Windows are best closed with coarse litter from the stables, stamped down and covered with sods or boards.

Work in the Horticultural Departments.

With shortening days and increasing cold, our notes gradually grow briefer. Still there is seldom a winter month that does not afford a few mild days, and allow us to do something that will save precious time next spring. Now comes the time for reading, and no money gives a better return than that expended in books. We are frequently asked if this or that book is worth the money. Of course there is a choice in books, but we never yet saw a work on horticulture that was so thoroughly poor that it did not contain some hint or idea that made the money it cost a good investment.

Orchard and Nursery.

The care of young trees is of the greatest importance, as they are liable to injury, not only from wild and domestic animals, but from the human animal as well.

Fences and Gates.—It is a very common custom with many, as soon as snow covers the ground, to disregard all established roads and paths, and drive or walk in the most direct line to their destination. We have known many young trees to be injured by this custom. See that fences and gates secure young orchards from human marauders; and if trees are exposed to injury by passers through the grounds around the house, drive down protecting stakes.

Young Trees should have mounds of earth, a foot high, drawn up around them, as it steadies them during heavy winds, and helps to ward off the mice.

Mice are, however, effectually guarded against by the use of tarred paper, as suggested on page 461.

Rabbits are also kept at a distance by the use of tarred paper. Blood is much used at the West for the same purpose, and various protective shields, such as corn-stalks and laths, bound to the trunk with wire, are found to be serviceable.

Pruning.—Whatever pruning is to be done, had better be disposed of during mild days, than to wait too late and be caught by the awakening of vegetation in spring. If large limbs are to be removed, make a smooth wound, and cover it with melted grafting wax or paint.

Cions may be cut at any time when the trees are not frozen, and may be preserved in sawdust or in damp moss; or they can be buried in a box in a place where water will not stand. Take every precaution to have the varieties properly labelled.

Heeled-in Trees.—There is no risk in heeling-in trees for the winter if it is properly done. The earth must be thoroughly worked in among the roots, and no spaces be left for air or water. Bank up the earth well and smooth it off, and see that there is no litter near by to afford shelter to mice.

Water.—Open the needed surface drains, to prevent water from standing in the orchard.

Root-grafting is carried on in-doors when the weather will not allow of outside work being done. The greatest care should be taken to keep varieties distinct, and the grafts, when done, should be put in boxes with earth and placed in the cellar.

Seeds.—Peach, plum, and cherry stones, if they have been dried, must be exposed to the action of frost. When the quantity is small, it is sufficient to mix them with earth and expose them in a box in a place where they will be frozen and thawed.

Fruit Garden.

Grape-vines should have been pruned last month; but the operation may still be performed in mild weather. Young vines should have a mound of dry earth drawn up to them. It is better to lay down all vines, whether tender or hardy, as long as they are young and flexible. It preserves the buds and increases the general vigor of the vine. Bend them down and throw a few inches of earth over them. Wood from the prunings should be cut into suitable lengths and buried where it will not dry.

Strawberry Beds.—The covering should be done as soon as the ground is slightly frozen. The object is to prevent the injurious effects of freezing and thawing; and the earth, rather than the plants, is to be covered.

Raspberries.—Bend down the tender kinds, and throw a few inches of earth over the canes.

Kitchen Garden.

Roots.—If the hardy roots, such as salsify, parsnips, horseradish, etc., are not all dug, some litter may be put over them to keep the ground from freezing and to prolong the season of digging. Store a lot in earth in the cellar for use when the out-door stock is not accessible.

Spinach, Sprouts, Shallots and Leeks will need a covering where the snow does not afford one.

Covering of Pits in which roots are stored should proceed gradually. Do not cover too soon, but when really freezing weather comes, put on enough litter to keep out frost.

Cabbages.—If the crop is not already secured, store as directed last month.

Cold Frames.—Avoid too much heat. Air every day, and when the temperature is above freezing, remove the sash altogether.

Seeds.—Thrash and clean all that remain uncared for, and see that all are correctly labelled, not only with name but date. Store where the temperature is low and even, and mice cannot destroy them.

Flower Garden and Lawn.

Protection should not be overdone. Half-hardy plants do better if a few evergreen boughs are stuck around them than if they are strawed up in the old-fashioned way. Tender roses are best treated by laying them down and covering with sods. This is only practicable in places well drained.

Climbers, not entirely hardy, like the Wistaria, in northern localities, should be taken from the trellis, laid down and covered with earth.

Evergreens.—Young specimens often need a slight protection until they become well established. A little care for a few years will often save a specimen which will afterwards prove perfectly hardy. Cedar or other evergreen boughs tied in among the branches answer an excellent purpose.

Snow often injures evergreens if allowed to remain in their tops. Shake it out while still light.

Trellises, Seats, and all wooden garden ornaments should be put under cover. They will last much longer if they have a good coat of petroleum.

Pits, Frames, and Cellars.—Plants wintered in either of these need to be kept in a dormant state. Do not allow them to be too wet. It is safer to let them get too dry. Do not look for growth, but simply endeavor to sustain life.

Clear up whenever an opportunity occurs, and do not wait until spring to remove the debris of last season's operations.

Greenhouse and Window Plants.

Heat, water, and air are the things to be provided. Dust and insects are to be guarded against.

Heat.—Most plants will survive if the temperature gets below 40°; but no healthy growth nor bloom can be looked for at a lower average daily temperature than 60° or 65°. It is better that the night temperature should fall 15° less than this. One difficulty with plants in our dwellings is that they are as hot at night as during the day.

Water.—Give water only when the plants need it. A plant with its roots constantly in mud cannot thrive. It is better to wait until the flagging of a plant shows that it needs water than to keep it constantly soaked. Sprinkling or showering should be done as often as possible. Take the plants to a sink or a bath tub and give them a good dousing.

Air.—Do not be afraid of opening the windows whenever the outside air is not freezing. Give air every day when it is safe to do so. Not only will the plants be benefited, but the atmosphere will be the better for human lungs.

Dust is a great obstacle to the successful growing of plants in the house. The showering we have recommended will help remove it, but all smooth-leaved plants, such as Camellias, Ivies and the like, should be occasionally sponged to keep the foliage clean and healthy.

Insects.—Don't have any. If the plants are daily looked over, and the thumb and finger properly applied, they will be kept in check. If a plant is badly infested by the green fly, put it in a box or under a barrel and smoke it thoroughly. If the red-spider appears, as it will be apt to do in hot and dry rooms, smoke will not help it. Remove the plant into hospital and shower it daily. Frequent wetting and a moist atmosphere is the best remedy.

Swindling Nurserymen.—A New Jersey nurseryman writes that last spring he received an order for 500 trees from J. D. Wilson, of Fort Lee, who gave as reference Mr. Peter Henderson. Knowing Mr. Henderson, and supposing all right, he sent the trees, but can get no response to repeated letters asking pay for them. Mr. Henderson informs us that he gave no permission to refer to him, and moreover, that he never saw nor heard of any such Wilson, and that the above case is one of a score of similar cases. An operator in Plainfield, N. J., obtained over $5,000 worth of nursery stock from various nurserymen by a similar dodge. The swindlers shrewdly calculate that many nurserymen will not take the trouble to inquire directly of the parties referred to, and thus they pick up a good deal of stock which is often sold by them by another swindle; viz., by claiming, under other names, to be the agents of some leading nursery establishment. As their stock costs nothing, they can sell it cheap enough to secure a quick sale. The lesson taught is that nurserymen must learn the character of those ordering stock, either by direct application to the parties given as references, or by other means.

Quoting the Agriculturist.— We have, of late, seen notices to the effect that "so and so says in the *Agriculturist*," mentioning one of the editors. Such notices are of course kindly intended to be complimentary to the persons referred to, but *they* would prefer not to be individualized in this manner. The *Agriculturist* is an *institution*, and should be quoted as such. What credit is given it, belongs to all connected with it.

NOTICE—To All SUBSCRIBERS to American Agriculturist.

As most Subscriptions expire with this last Number of **Volume 29,** *the probability is that* **Your Subscription Expires NOW.** *Our subscribers are so numerous that we can not send out individual notices of the time of expiration. (You will readily remember it, if your own subscription runs beyond this date, or if it has recently been renewed for* 1871.)..... *We take it for granted that all who have read this Journal the past year, will cheerfully continue its perusal. We can only say, that while it shall be in nowise inferior to what it has been in the past, we fully intend to keep on improving the paper—in beauty, in the number and character of its engravings, and in* **real value.** *All the writers who have been with us the present year, will continue their best efforts, and new help will be added. Both Publishers and Editors feel that every year's experience enables them to do better and better..... We now ask, as a favor, that our friends will* **send in their renewals promptly.** It can as well be done To-day, as To-morrow. *It will* **greatly aid** *us to have renewals and new names come in the* **first part** *of December, so that we can get the new books for* 1871 *all properly arranged* **before** *Christmas; and as this is a work of great magnitude, and needs the care of our experienced clerks, we will take it as a* **special favor,** *if you will sit down* **the day this paper arrives** *and send us your own renewal for* 1871, *with other names.....Any favor on your part, in the way of inviting a neighbor or friend to subscribe, either for the English or German Edition, will be duly appreciated.*

While we intend to make the AMERICAN AGRICULTURIST so valuable and so beautiful, that no one can do without it, we also invite the attention of our readers to our WEEKLY *Journal, HEARTH AND HOME. It is essentially a* **Home Newspaper**—*entirely different in matter and engravings from the Agriculturist—but filled with splendid engravings, and interesting reading matter for every member of the Household. As a FAMILY NEWSPAPER it shall be unsurpassed. Its News department, brought up to the latest moment, will give a valuable digest of the important events, stated in a CONDENSED but clear manner, so as to render its readers intelligent, and yet not tax their time with a mass of useless details and rubbish. The information about the principal products of the farm and plantation, their amount, and the consequent market value, will be of very great use to all producing or dealing in the leading crops of the country.... The Subscription Price for* 1871 *is put lower than that of any other equally beautiful, valuable, and costly journal in the world; viz., only* **$3** *for an entire year. or four copies for* **$2.75** *each, or ten copies for* **$2.50** *each, or twenty or more copies for* **$2.25** *each ....AMERICAN AGRICULTURIST together with HEARTH AND HOME only* **$4** *a year.*

☞ *The two journals will together furnish an amount and variety of reading matter, news, etc.. that will meet the chief wants of nine-tenths of all the families of our country. They will together give more than* **$30,000** *worth of fine. instructive and pleasing ENGRAVINGS during a single year. Please TRY BOTH.*

PREMIUMS! Good Premiums! *All should* turn to page 469, and examine carefully what is said about premiums. There is undoubtedly a fine opportunity to secure articles that are really valuable, and warranted *first-class* in every respect. There is no claptrap in this matter. Full **10,000** persons have tried and proved the truth of this. And it is quite easy to get these premiums, for any person who desires it. There is no reason why *Thirty to Forty Thousand persons* should not *each* obtain one or more of these articles—to their own benefit, to the benefit of the persons they induce to become readers, and to the gratification of the Publishers. ....The **Steam Engines** on page 464 will be very attractive, and this is a very fine premium which will come within the reach of *every one* of our readers.

Clubs can at any time be increased by remitting for each addition the price paid by the original members; or a small club may be increased to a larger one: thus: a person having sent 10 subscribers and $12, may afterwards send 10 more subscribers with only $8; making a club at $20; and so of the other club rates.

The "Novel Exhibition," announced on page 449, will attract universal attention, and will doubtless not only stimulate many a maiden and matron to greater skill in a very useful accomplishment, but will be a great blessing to many poverty stricken sufferers.

Millions of Dollars have undoubtedly been saved to the people, by the untiring exposure of humbugs kept up in this journal for more than a dozen years past. These cost us no little trouble, and some lawyer's expenses, for the swindlers now and then "strike back" in the form of lawsuits. We seldom allude to these suits, as we do not propose to give the fellows the notoriety and advertising they thus seek. We have never been beaten by them, and probably *never shall be*, as we constantly aim to be truthful in all exposures. Though often wearied with the time and trouble required, the benefit is so great to our readers, and through them to millions of others, that we shall not hesitate to keep up for another year a vigorous investigation and exposure of the various Humbugs that infest the country.

It Will Pay to supply yourself, your sons, and your workmen, with good papers and books. $10 to $20, or more, expended in this way, will come back every year. Your sons will be kept from idleness and mischievous company; they will understand and respect their work more; they will gain new ideas and learn to think and reason better; they will learn to make their heads help their hands; they will labor more intelligently and be happier because their minds will be developed, and they will have something to think about while at work. Better sell an acre of land than not to have these mind cultivators. Any *intelligent* man will make more off from 9 acres than the unintelligent one will from 10 acres. Think of this in planning and providing for your sons in the future. Store their growing minds with useful ideas, or the devil will fill the vacancies with very undesirable tenants (ideas). (The premium list on page 469 will afford to many an opportunity to get some books free of expense; and plenty of good books, to be *delivered* by mail or otherwise, will be found in the advertising pages.)

SPECIAL PREMIUMS.

FOR RENEWAL AND ONE SUBSCRIBER TO AMERICAN AGRICULTURIST, OR ONE SUBSCRIBER TO HEARTH AND HOME.

Trophy Tomato has proved so far superior to others that we desire to have it widely distributed, and we have made such arrangements with Col. Waring as to enable us to offer pure seed from headquarters, with his trade mark guaranty of genuineness. (See page 445.)

Japan Lilies.—We offer from the gardens of A. S. Fuller, Esq., several of the beautiful Japan Lilies, some of which have been sold by seedsmen within the last two years as high as $5 each. Any one of these is an ornament to any garden, and they can be had *free* as premiums.

Eumelan Grape-Vines.—Hasbronck & Bushnell, proprietors of the original stock, will supply us with vines of this most excellent variety, and we wish all of our subscribers would try at least one.

I.—To every old subscriber to *American Agriculturist* who after this date renews, and sends one new subscriber, with $1.50 for each, and 5 cents for postage on the premium, we will send any one of the following eight articles that may be chosen:

1 Package (200 Seeds) of Trophy Tomato Seeds.
Or:—1 Bulb Red Japan Lily, *Lilium speciosum rubrum.*
Or:—1 Bulb White Japan Lily, *Lilium speciosum album.*
Or:—1 Bulb Golden-banded Lily, *Lilium auratum.*
Or:—1 Bulb Long-flowered Lily, *Lilium longiflorum.*
Or:—1 Bulb Gladiolus, or Sword Lily, named varieties.
Or:—2 Bulbs *Tigridia*, or Mexican Tiger Lily, differ't kinds
Or:—1 Eumelan Grape-Vine No. 1.

II.—For one subscriber, received after this date to HEARTH AND HOME, for one year, at $3, with 5 cents for postage on the article, we will send any desired one of the above premiums. Subscriptions taking these special premiums will not be counted in other premium lists.

Commercial Matters—Market Prices.

The following condensed, comprehensive tables, carefully prepared specially for the *American Agriculturist*, show at a glance the transactions for the month ending Nov. 14, 1870, and for the corresponding month last year.

1. TRANSACTIONS AT THE NEW-YORK MARKETS.

RECEIPTS.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
26 days *this* m'th.	511,000	3,196,000	1,574,000	89,000	847,000	1,716,000
25 days *last* m'th.	453,500	2,814,090	1,287,000	99,000	715,000	1,588,000

SALES.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
26 days *this* m'th.	329,000	3,437,000	1,519,000	61,500	239,000	1,856,000
25 days *last* m'th.	307,500	3,168,000	1,521,000	71,000	217,000	1,718,000

2. *Comparison with same period at this time last year.*

RECEIPTS.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
26 days 1870.....	511,000	3,196,000	1,574,000	89,000	847,000	1,716,000
29 days 1869.....	471,000	3,763,000	1,656,000	35,000	833,000	1,645,000

SALES.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
26 days 1870	329,000	3,437,000	1,519,000	61,500	239,000	1,856,000
29 days 1869. ...	312,000	3,841,000	1,965,000	38,500	331,000	1,537,000

3. *Exports from New York, Jan. 1 to Nov. 14:*

	Flour.	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
1870.....	1,677,064	15,291,499	366,877	92,431	131	22,050
1869.....	1,304,834	16,197,951	1,595,282	130,948	46,594	81,969
1868.....	842,393	4,809,527	5,645,795	153,093	61,598	149,479

4. *Stock of grain in store at New York:*

1870.	*Wheat,* bush.	*Corn,* bush.	*Rye,* bush.	*Barley,* bush.	*Oats,* bush.	*Malt,* bush.
Nov. 9.....	2,092,900	300,000	116,800	400,400	2,125,000	———
Oct. 10.....	1,809,921	476,544	53,391	184,803	1,679,658	237,452
Sept. 12.....	1,387,487	761,891	50,869	107,474	1,053,079	130,881
Aug. 8.....	1,438,876	589,973	25,437	106,101	691,766	119,046
July 11.....	1,281,913	483,510	28,816	98,600	635,068	109,478
June 7.....	706,478	69,845	21,891	94,630	488,143	108,775
May 10.....	1,158,052	110,829	20,503	126,043	440,517	83,000
April 11.....	1,845,186	285,946	23,249	187,172	756,811	99,988
March 7.....	2,509,608	434,176	39,089	278,905	1,165,194	97,139
Feb. 11...	2,902,638	534,003	62,112	322,425	1,199,672	56,214
Jan. 12.....	4,423,028	591,903	88,289	34,900	1,310,935	85,405
1869.						
Dec. 11.....	3,810,562	823,909	50,043	285,906	1,386,594	77,097
Nov. 10.....	1,616,030	693,085	31,700	31,584	281,581	66,782

5. *Receipts at head of tide-water at Albany each season to Nov. 7:*

	Flour, bbls.	*Wheat,* bush.	*Corn,* bush.	*Rye,* bush.	*Barley,* bush.	*Oats,* bush.
1870....	356,600	13,918,300	4,584,300	529,900	2,206,800	5,210,900
1869....	394,600	14,345,000	6,253,200	262,300	743,900	3,131,400
1868....	353,700	10,710,500	16,091,400	445,600	2,673,300	9,469,460
1867....	334,100	7,054,000	11,582,400	735,200	2,626,400	6,876,100

Gold has fallen to 110, since our last, influenced by the reported signing of an armistice between Prussia and France; and by the very liberal disbursements of coin from the United States Treasury, chiefly on the November interest account. The closing quotation is 111⅜.... Breadstuffs have been quite active. The export demand for Flour and Wheat has been brisk; and the home trade have been free buyers. The large receipts, however, added to the rise in ocean freights, operated against prices, which have been quoted lower and quite variable, but which leave off with reviving firmness. Corn and Oats have been in more request for home trade and speculative purposes, and have advanced. Barley has been offered freely at lower rates, yet has been very moderately inquired for. Rye has been dull and more or less nom-

inal in price....Provisions have been in better supply and quoted cheaper, yet have not been active....Wool has been held with confidence, on moderate stocks of desirable grades, but has met with a rather slow sale ... Cotton has been in lively demand at irregular prices, closing firmly. The receipts at the ports the last two weeks have been unusually heavy....Tobacco Seed and Hops have been quiet and without buoyancy in price ... Hay has been in good request and quoted higher.

CURRENT WHOLESALE PRICES.

	Oct. 13.	Nov. 14.
PRICE OF GOLD	113¾	111¾
FLOUR—Super to Extra State	$5 10 @ 6 15	$4 75 @ 6 15
Super to Extra Southern	5 00 @ 9 25	4 85 @ 9 25
Extra Western	5 30 @ 9 25	5 25 @ 9 25
Extra Genesee	6 25 @ 8 50	6 15 @ 8 75
Superfine Western	5 10 @ 5 35	4 75 @ 5 15
RYE FLOUR	4 00 @ 5 75	4 00 @ 5 50
CORN-MEAL	4 50 @ 5 30	3 80 @ 4 75
WHEAT—All kinds of White	1 45 @ 1 75	1 40 @ 1 75
All kinds of Red and Amber	1 00 @ 1 40	1 05 @ 1 42½
CORN—Yellow	90 @ 95	82 @ 95
Mixed	81 @ 86½	86 @ 90
OATS—Western	52 @ 57	56 @ 63½
State	56 @ 58	Nominal.
RYE	83 @ 95	90 @ 1 20
BARLEY	95 @ 1 25	85 @ 1 15
HAY—Bale ₱ 100 lb	1 05 @ 1 45	1 12½@ 1 45
STRAW, ₱ 100 lb	60 @ 1 10	75 @ 1 15
COTTON—Middlings, ₱ lb	15⅜@ 16½	16¾@ 16¾
HOPS—Crop of 1870, ₱ lb	12 @ 20	10 @ 19
FEATHERS—Live Geese, ₱ lb	75 @ 85	75 @ 85
SEED—Clover, ₱ lb	9½@ 10¼	10 @ 10¾
Timothy, ₱ bushel	4 25 @ 5 00	4 50 @ 4 75
Flax, ₱ bushel	2 10 @ 2 20	2 10 @ 2 25
SUGAR—Brown, ₱ lb	9 @ 11¾	8¾@ 11¾
MOLASSES, Cuba, ₱ gal	18 @ 36	18 @ 36
COFFEE—Rio, (Gold, in bond)	9¼@ 13	9¼@ 13
TOBACCO, Kentucky, &c., ₱ lb	6½@ 13¼	5½@ 13
Seed Leaf, ₱ lb	10 @ 75	8 @ 75
WOOL—Domestic Fleece, ₱ lb	45 @ 56	43 @ 56
Domestic, pulled, ₱ lb	25 @ 45	25 @ 45
California, unwashed	25 @ 33	28 @ 33
TALLOW, ₱ lb	8¾@ 9¾	8¼@ 9
OIL-CAKE—₱ ton	40 50 @41 00	39 50 @40 50
PORK—Mess, ₱ barrel	26 25 @26 50	24 50 @25 00
Prime, ₱ barrel	21 50 @23 00	20 00 @21 50
BEEF—Plain mess	10 00 @18 00	10 00 @15 00
LARD, in tres. & barrels, ₱ lb	14½@ 16¾	13½@ 15¾
BUTTER—State, ₱ lb	20 @ 47	20 @ 42
Western, ₱ lb	18 @ 37	15 @ 35
CHEESE	5 @ 15	5 @ 15½
BEANS—₱ bushel	1 40 @ 2 50	1 75 @ 2 75
PEAS—Canada, free, ₱ bu	95 @ 1 00	1 20 @ 1 35
EGGS—Fresh, ₱ dozen	28 @ 32	28 @ 34
POULTRY—Dressed Fowls	16 @ 17	18 @ 20
Chickens, Spring, ₱ lb	17 @ 19	18 @ 21
Turkeys, dressed, ₱ lb	20 @ 22	21 @ 23
Geese, ₱ pair	1 50 @ 2 00	1 50 @ 2 25
Woodcock, ₱ pair	87 @ 1 12	75 @ 85
Partridges, ₱ pair	1 00 @ 1 12	75 @ 1 00
Ducks, ₱ lb	— @ —	16 @ 20
Prairie Chickens, ₱ pair	— @ —	87 @ 1 12
POTATOES, ₱ bbl	2 00 @ 3 25	1 75 @ 4 00
SWEET POTATOES, ₱ bbl	1 75 @ 2 50	2 25 @ 3 00
TURNIPS—₱ bbl	2 00 @ 2 25	1 00 @ 1 25
CABBAGES—₱ 100	7 00 @10 00	7 00 @10 50
ONIONS—₱ bbl	3 00 @ 4 00	3 00 @ 3 50
CRANBERRIES—₱ bbl	9 00 @12 00	8 00 @12 00
BROOM-CORN—₱ lb	3 @ 8	3 @ 8
Pumpkins, per 100	7 00 @ 9 00	6 00 @ 9 00
Squashes, ₱ bbl	87 @ 1 25	— @ —
Pears, ₱ bbl	3 00 @15 00	5 00 @15 00
Melons, ₱ bbl	1 00 @ 2 00	1 00 @ 2 00
Plums, Gage, ₱ bushel	1 25 @ 3 00	1 50 @ 3 50
APPLES—₱ barrel	50 @ 2 75	50 @ 2 50
GRAPES—₱ lb	6 @ 8	6 @ 9

New-York Live-Stock Markets.—

WEEK ENDING.	*Beeves.*	*Cows.*	*Calves.*	*Sheep.*	*Swine.*	*Tot'l.*
Oct. 17th	9,663	143	2,684	42,494	22,575	77,559
do. 24th	8,296	101	2,923	43,787	24,752	79,779
do. 31st	8,100	105	2,231	35,435	30,538	77,209
Nov. 7th	7,553	128	1,799	43,510	26,961	79,951
Total in 4 Weeks	33,612	417	8,557	165,226	104,826	314,468
do *for prev. 4 Weeks*	31,685	250	12,811	144,027	75,367	264,662

	Beeves.	*Cows.*	*Calves.*	*Sheep.*	*Swine.*
Average per Week	8,403	111	2,139	41,306	26,206
do. do. *last Month*	7,921	63	3,203	36,007	75,745
do. do. *prev's Month*	8,119	69	2,970	35,399	94,045
Average per Week, 1869	6,275	92	1,752	28,836	15,348
do. do. do. 1868	5,733	105	1,588	27,183	18,809
do. do. do. 1867	5,544	64	1,320	22,154	26,605
do. do. do. 1866	5,745	94	1,200	20,000	13,000
do. do. do. 1865	5,255	118	1,500	16,091	11,013
Total in 1869	326,280	4,837	91,083	1,499,500	788,199
Total in 1868	298,128	5,466	82,571	1,413,479	978,061
Total in 1867	293,872	3,369	69,911	1,174,154	1,102,643
Total in 1866	298,880	4,885	62,420	1,040,000	672,000
Total in 1865	270,271	6,161	71,991	856,733	573,190
Total in 1861	267,609	7,603	75,621	782,462	660,277

Beef Cattle have been too abundant for a good trade or steady market. Prices have tended downward all the month, and we mark the decline at least one cent per lb on all grades. We have had a very fair supply of Western steers in good condition, which, had the weather been steady, would have brought a good price; but with the hooks full of dead meat, and poultry coming in rather freely for the season, butchers were not disposed to buy largely. Some sleek bullocks sold at 14½c.@15c. per lb., while the very best Kentucky grade Durhams brought only 16c. per lb. Below we give the list of prices, average price, and figures at which large lots were sold:

Oct. 17th, ranged 8 @16¼c. Av. 13¾c. Large sales 11 @15
do. 24th, do. 7¾@16¼c. do. 13¾c. do. do. 11 @15
do. 31st, do. 9 @16¼c. do. 14 c. do. do. 12 @15¼
Nov. 7th, do. 7 @16 c. do. 13 c. do. do. 12 @15

Milch Cows.—Trade is rather slow, and prices about the same. We notice every month some first-rate milkers, which always go off quickly at good figures. It is the poor, half-milked cows which are a drag in the market. Prices range all the way from $50@$100 each. What are called good, sell for $80@$90. Medium, $70@$75, with poor at still less figures.....**Calves.**—There has been quite a decline in the arrivals, due to the larger quantity coming in dead, or "hog-dressed," as they are called. Good, fresh milk calves go off quickly at $12½c. @13 per lb. Grass-fed sell mostly by the head for from $8@$10.50 each. Ordinary milk and slop-fed bring 8½c. @11c. per lb.....**Sheep and Lambs** are very plenty, and trade dull. All grades sell low, and none but the best realize much profit to the owner. Prices range as a rule from 4c.@6½c., the extreme for sheep, while 6½c.@8¼c. is the range for lambs.....**Swine.**—There has been quite an increase in the arrivals over last month. Most of the hogs go at once to the slaughterers, and are sold, dressed. Prices have declined somewhat; for sales made alive, were at 8c.@8½c. per lb. Light-dressed sell for 12c.@12½c., with heavy weights at 10c.@11½c.

containing a great variety of Items, including many good Hints and Suggestions which we throw into smaller type and condensed form, for want of space elsewhere.

Postage 12 Cents a Year in Advance.—The postage on the *American Agriculturist* anywhere in the United States and Territories, *paid in advance*, is 3 cents a quarter, 12 cents a year. If not paid in advance, twice these rates may be charged.

How to Remit:—Checks on New-York Banks or Bankers are best for large sums; made payable to the order of **Orange Judd & Co.**

Post-Office Money Orders may be obtained at nearly every county-seat, in all the cities, and in many of the large towns. We consider them perfectly safe, and the best means of remitting fifty dollars or less, as thousands have been sent to us *without any loss.*

Registered Letters, under the new system, which went into effect Oct. 1, 1868, are a very safe means of sending small sums of money where P. O. Money Orders cannot be easily obtained. *Observe*, the *Registry fee*, as well as postage, *must be paid in stamps* at the office where the letter is mailed, or it will be liable to be sent to the Dead-Letter Office. *Buy and affix the stamps both for postage and registry, put in the money, and seal the letter in the presence of the postmaster, and take his receipt for it.* Letters thus sent to us are at our risk.

Bound Copies of this Volume will be ready this month. Price, $2, at our office; or $2.50 each, if sent by mail. Any of the previous thirteen volumes (16 to 29) will also be forwarded at same price. Sets of numbers sent to our office will be neatly bound in our regular style, at 75 cents per vol., (50 cents extra, if returned by mail.) Missing numbers supplied at 12 cents each.

Save the Index Sheet, which is put *loosely* in this number, so that it can be bound or stitched at the beginning of the volume without cutting the thread.

Many Items are left over, including answers to correspondents—also Farm Notes—because the Annual Index takes out pages of this number. To add these pages extra would increase the weight beyond ¼ pound, and double the postage to all subscribers.

Pipe and Pump.—F. E. Chadwick, New London Co., Ct., writes: "I have a *well* 20 feet deep, located 6 feet from the sink, to which I wish to bring water by a pump. I wish to know which is the best pump, and *especially* the best *pipe?* The water is to be used for *drinking*, etc., and is very hard."——By all means use the tin-lined pipe. Any good common pump will answer your purpose. Your plumber will furnish a Douglass or Cowing pump. If you can shift your sink to bring it over the well, we would advise you to put in the submerged pump offered in our premium list, or one of a size larger, as it is better than any other we know.

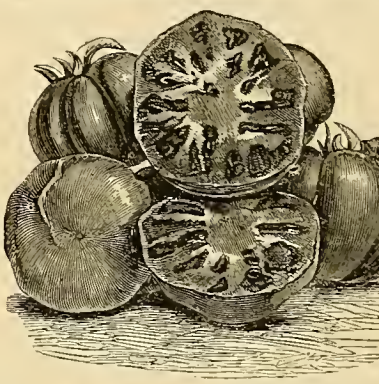
Again.—Letters without signatures are not regarded. It takes all the time we can devote to the matter to answer those who do sign their names.

Red Ink and Pencil.—Some persons write us in red ink and others in pencil, and expect us to read their letters. The horrible purple inks are bad enough, but please do n't depart any further from black.

"Ten Years of Music from the Mason and Hamlin Cabinet Organ, which has occupied an honored place in our household during that time, should be compressed into this paragraph to adequately express our opinion of the merits of the instrument. Notwithstanding the severe test of practice upon it by three learners, in addition to other regular performances, its tone and action are unimpaired: it has never required tuning, and will apparently be in good trim for the grandchildren, when their fingers can reach the keys."—[This high praise coming from one of our associates in this office, is worthy of note by those who desire to have good music at home.]

Bee-keepers' Convention.—A call has been issued for a Bee-keepers' National Convention, to be held at Cincinnati, Ohio, February 8th and 9th. A "grand rally" is hoped for. H. A. King, of New York, Geo. F. Palmer, Cincinnati, O., J. W. Horner, of Minnesota, Mrs. E. S. Tupper, of Iowa, and L. C. White, of St. Louis, have the affair in charge.

The Trophy Tomato.—Not many years ago a tomato was a tomato, and it is only recently that we have had named varieties. Leaving the matters of earliness and productiveness out of question, there is really a great difference in the quality of tomatoes—almost as much as there is in that of strawberries. By quality we include not only flavor but the texture and solidity of the flesh, which are characters of prime importance if the fruit is to be eaten raw, and of no little consequence if it is to be cooked. In the Tropby tomato we have a rare combination of excellent qualities. It is



as early as any, very productive, and for great weight and solidity and excellent flavor, it is unequalled by any variety we have tested. The Trophy grows to a large size, and in an engraving we can give only a reduced representation to show its regularity of form and solidity of flesh. In order to put this excellent variety within the reach of all who wish to try it, the publishers of the *Agriculturist* offer the seeds of the Trophy as a premium, as will be seen by announcement upon another page.

"Union is Strength."—Though the *Hearth and Home* and *American Agriculturist* are entirely different, there is a very manifest advantage in combining their publication under one business management. Besides the saving in office rent, in business employés, in the purchase of paper, materials, etc., the two papers make practicable the maintenance of a large and complete engraving and artists' establishment, which secures a regular supply of superior illustrations at less cost, all of which inures to the benefit of the readers.

Please Speak of our German Edition.—This has all the principal articles and engravings of the English edition, besides a Special German Department, by Hon. Frederick Münch, a practical cultivator in Missouri. This paper is useful to the great number of German-speaking cultivators of the country, and especially so to the scores of thousands of new comers from Faderland. Terms the same as for the English edition. Clubs may consist of either edition, or partly of both.

How to Prevent Pigs Eating their own Droppings.—A western farmer writes: "You have stated it is an injurious habit for pigs to eat their own droppings, but do not say how to prevent it."——It is not an easy matter to do so entirely. But this is no reason why we should not guard against it as much as possible, instead of encouraging the habit, as many now do. Feeding the pigs properly, so that they will completely digest their food, is the best preventive. Cleaning the pens out every day is another. One of the best means of *encouraging* the habit is to keep the pigs on grass or clover up to a certain day, and then shut them up in a pen and throw in a large quantity of ears of corn for the animals to gorge themselves with. Then, do not clean out the pen, and when the pigs get hungry, they will eat up the waste corn, droppings included. On the other hand, if the pigs are fed corn while at pasture, and the quantity is gradually increased, as fast and no faster than the pigs are able to digest it, or if, after the pigs are shut up to fatten, they are allowed some succulent or less

concentrated food with the corn, and are regularly fed all they will eat, there will be no necessity for their eating the droppings, and nothing is to be gained or saved by the practice.

Rye vs. Corn for Fattening Hogs.—One of our subscribers at York, Pa., asks, "Which is the cheapest or most profitable grain to fatten hogs—corn at 70c. per bushel, rye at 80c., or buckwheat at 80c. Some farmers here say they would pay 20 cents a bushel more for rye than for corn to fatten hogs, while another says buckwheat is the cheapest. For my part I prefer solid old corn, ground and cooked, and not new soft corn, fed on the ear, as many do."——You are right. There is nothing better than good sound corn-meal for fattening hogs. Rye meal is a strong food, and may be used with advantage to give a change of diet, and so will barley and peas. If by changing the food occasionally we can induce the hogs to eat and digest more of it, we can afford to pay a little more per pound for rye, barley and peas, than it is actually worth. But so far as nutriment is concerned, when it can be obtained for the same price per ton, there is nothing cheaper than good corn-meal. See "Harris on the Pig" for some experiments in fattening hogs with different foods.

Head of Pettypet.—(*Concluded from 1st page.*)—Pettypet is of a soft yellow dun, with black points, and shadings of dark-brown upon the head and neck. She has much of the depth of the Guernsey, with their milking characteristics. The lactometre indicates a richness of 22 per cent cream in her milk. She has had two calves, and is now past three years old. Her horns are delicate, and tipped with black, and she has no white spot upon her, though her legs shade off from dun to very light upon the insides, being dark in front. She would be taken, half Guernsey as she is, by well posted Jersey fanciers, as of the highest and best type of the Jerseys. She is owned by Mr. L. A. Chase, and kept at Herdsdale Farm, in Florence, Mass.

Tobacco Worms.—D. O. Ners, Maryland, makes the following good suggestion: That gardeners and planters who find the tobacco or tomato caterpillars with cocoons of parasites upon them, should not destroy these, but leave them to give the parasitic insect a chance to hatch out and thus multiply the enemies of the destructive caterpillar.

Yellow Zinnia.—"J. S. D." Yellow Zinnias are not unusual; we had several fine ones this year.

Osage Orange Seed.—"W. G." Green Co., Mo. Place the balls in a heap where they can freeze, thaw, and decay as they will all winter. Next spring pound them up and wash the seeds from the pulp, and sow as soon as frosts are over.

Lemon-Tree.—"W. R.," Coopersville, Mich. In time, your lemon-tree will fruit. The object in budding it is to get it into bearing sooner and to have a good variety of fruit. As you seem to be unfamiliar with the operation, we advise you to send the tree to a florist to be budded, or wait until it is large enough to bear.

A Large Squash.—J. L. Burt, Tioga, Pa., reports having raised a Brazilian squash which measured 8 feet 4½ inches in circumference, and weighed 249½ pounds. He asks if this is not the largest yet. We do not recollect the statistics of large squashes, but this strikes us as being "beftier" than any we have heard of.

Trimming Pear-Trees.—W. B. Squire. Any time during mild winter weather, and before vegetation starts in spring. Your other question is referred to our Entomological Editor.

Poultry Bulletin.—"W. B. S." This is the only paper exclusively devoted to poultry matters. All the agricultural papers treat upon the subject.

Chestnuts and Mulberries.—J. Van Loon, La Crosse Co., Wis. We think that the chestnut would be hardy with you, but the cultivated sorts of mulberry might not be. The Downing's Everbearing is probably the best variety. It originated at Newburgh, N. Y., where the winters are very severe, and it would be worth while to make a trial of it.

Poisonous Cabbage Worm.—Wm. Waters, Anthony, N. J., says: "Our community is much excited over reports of persons having been poisoned to death from eating cabbages infected with worms. The worm, in appearance, is the same as that described in the November number of the *Agriculturist*." We believe the excitement entirely unfounded. The "worm" is no new thing, but has been a pest in Europe for years, and if there were any thing injurious about it, it would have been discovered before this time. Let us know the name of a single person who died from eating cabbage infested by the "worm," and we will send a competent man to investigate the matter. As a matter of fancy, we prefer our cabbages without any worms; but as far as apprehending any ill effects goes, we should not hesitate to eat wormy cabbages if we liked our worms and our cabbage together. It is evidently a groundless scare.

Potatoes from Seed.—E. Moore states that last spring he planted the seed from two or three potato balls. But a single seed came up, and the plant from this, when dug, yielded 25 potatoes, the largest of which weighed 14 ounces, with several from 4 ounces to 8 ounces each. He asks if there is any thing unusual in this result. It is the largest crop of seedling potatoes we ever heard of. What say our friends who have experimented in raising seedlings?

Value of Manure from Cotton Seed.—"A. B. F.," of Georgia, asks: "Is the manure made from cotton seed meal as valuable as that made from linseed oil-cake?"——We do not know exactly what he means by cotton seed meal—whether it is cotton seed ground into meal, or whether it is the meal from cotton seed cake left after the oil is pressed out of it. The manure from a ton of linseed is estimated to be worth $15.65; from a ton of linseed oil-cake, $19.72. From a ton of cotton seed meal, after being sifted to remove as much of the cotton and husk as possible, the manure is worth $13.25; that from a ton of undecorticated cotton seed *cake*, $15.75; while that from a ton of decorticated cotton seed cake is worth $27.86. We should be glad if our correspondents would inform us as to what is being done with cotton seed in different sections of the country.

Hand Thrashing Machine.—J. T. Spooner writes: "Please send me the addresses of persons making or selling the hand thrashing machines that were on exhibition at the New England fair." Those parties ought to advertise; we have had several inquiries.

Lice on Hogs.—"G. R. W.," of Booneville, Ind., asks what he shall do, in the absence of carbolic soap, to destroy lice on hogs. Give the hogs a good washing with warm soft water and common soap, using a brush freely; then, having got the hogs thoroughly clean, dust them over with snuff and rub it well into the skin; or, if preferred, wash them with a decoction of tobacco; or, after the washing with soap and water, wash them with crude petroleum; or, if more convenient, put half a pint of carbolic acid into a gallon of soft water and wash them with that.

A Red Katydid.—Mr. T. J. Bailey, Grape Island, W. Va., sends us a specimen of a Katydid which is like the figure of *Phylloptera oblongifolia* in Harris' Insects. This insect is usually green, but one specimen which reached us alive, was as red as a boiled lobster. We have submitted it to one of our most distinguished entomologists.

Late Strawberries.—R. S. Haywood sends finely ripened specimens from his place at Rye, N. Y. The excessive drouth followed by rains has been very favorable to the development of late specimens.

How Much Gypsum per Acre?—"Geo. R. W." The usual quantity is from one to two bushels per acre. When plaster is cheap, and when the sowing costs more than the plaster, farmers sometimes put on three or four bushels per acre, in the belief that it will last longer. It is doubtful how far this opinion is well founded. Our own practice is to sow two bushels per acre, broadcast, on clover, corn, potatoes, peas and barley.

Eggs.—From January 1st to October 29, Edward Woodman, of Cambridge (no State given), obtained 1,520 eggs from an average of 12½ chickens, making 121 and over each—a very good average.

Onions.—"J. C. McV.," Sedalia, Mo., has a lot of onions that are as large above ground as they are below the surface, and asks what can be done with them. They are Scallions, and we doubt if they will ever make onions. Better leave them in the ground and they will probably do next spring to pull for green onions or rare-ripes. It is not likely that you will be able to raise onions from seed in your climate. You should grow sets.

Virgalieu, or White Doyenne Pear.—"E. W. M.," Elyria, O., writes: "Last spring I grafted a 'White Doyenne' pear-tree, the fruit of which had always cracked so much as to be entirely worthless. Those limbs which I did not cut off are now loaded with excellent pears, not one of which is cracked. My brother has a dozen trees of the same variety, none of which ever bore perfect fruit. Last spring he *pruned* ten of them, lessening their tops about one-third. These ten are now loaded with perfect fruit, while the fruit on the other two is as badly cracked as ever. Is pruning a remedy for this trouble, which I believe is quite general with White Doyenne?"——Pruning apparently did some good in this case, but as last season was an unusual one, it is not safe to attribute the result solely to the pruning.

Sundry Humbugs.—The "Queer," *alias* Counterfeit Money, *alias* Photographic, *alias* "fac-simile" swindle is getting almost too well known to be profitable, and the ingenious rascals are busy hatching out other plundering schemes, some of which will crop out about the holidays. Indeed, a large number of new circulars and lithographic letters are now in mailing to distant points, and our readers may be prepared to receive sundry very tempting and plausible offers of an easy fortune. Our "shadow" reports large numbers of women, girls and boys, engaged in folding and mailing letters and circulars in the upper story "roosts" and "cupboards" occupied by the swindling fraternity. Our readers will aid in checking their operations by promptly sending any of these circulars, etc., either to our office, or to James Gayler, Esq., Special U. S. Mail Agent (address, N. Y. P. O). The *American Agriculturist* will be after all these fellows during the year to come. We find in our exposures of this year no less than 176 names, real and assumed, of these swindlers. Several of them have acknowledged that their business would be ten times as profitable if they could get rid of this journal, and that with the *Agriculturist* and Mr. Gayler out of the way, they could soon make a fortune.....The money swindle, fully explained in our October number, is still largely carried on, though nearly at the end of its rope, as our explanations and exposures are becoming widely disseminated among all classes. A bushel, more or less, of these letters, sent to us from all parts of the country, within a few days, are mainly from a few operators, though under several names. Jas. Fisher and Co., (shown up last month,) operates also as Williams & Co., Owen Brothers, etc. The same or similar lithographic letters are sent out largely by one operator, under the assumed names of Joseph R. Lee, 82 Nassau St.; Jno. B. Forrest, 20 John St.; Frank Fielding, 266 William St.; Edward F. Dickinson, 36 Maiden Lane; Francis H. Randall, 114 Fulton St.; Ed. B. Kane, 23 Dutch St.; Jas. A. Holt, 116 Fulton St.; Thos. G. Allison, 85 William St.; Francis Ogden, 39 Maiden Lane; Jas. B. Sherman, 109 William St.; Henry Hicks & Co., 37 Nassau St., etc., etc. These mostly give one place for express parcels, and another (usually 52 John St.,) for victims to call at—no express messengers would take the trouble to climb up to the sixth story dens where the victims are robbed, as described by us in October. They all pretend that the name of the party addressed has been given them by some friend of his, which is of course false; they buy the lists of names, as before explained, from those who make a business of collecting them from all parts of the country to sell to just such swindlers. We have a lot of recently mailed letters of Rufus Stockton, showing that Hubbard still likes that name to swindle with.....S. B. Parks & Co., 208 Broadway, offer to send "samples" for only $5—which means that either you will get nothing, or that, if you are supposed to be green enough, they may send you $4 or $5 of genuine money, pretending this is a sample, so that you may be led to remit $25 or $50 for more, and *that* they (he) will pocket. This is a frequent trick. B. B. Walker & Co., 206 Broadway, is the same party, under another name. Another "confidential" letter, offering the "Queer," attempts to imitate a foreign idiom, claims to print counterfeit money from plates made in Europe, and gives the address of McNally & Co., 229 Broadway, for express parcels, and S. Y. Adando, 60 Park Place, for letters.....J. A. Whitfield, 5½ Bleecker St., makes the usual offer, by circulars, to one of which John O'Niel, of Deer Lodge City, Montana Territory, responds that such money as this Whitfield's is claimed to be, is too good to be exchanged for the kind of greenbacks they have there, but he will "swop" a ready-made, fire-proof *coffin* for a bundle of it!.....Country Postmasters will do well to keep a sharp lookout. A fellow is operating in the towns along the Hudson River. He sends out the Lithographic letters giving a variety of names, now at one Post-office, then at another. The latest one is dated at Oblong, Dutchess Co., N. Y., and signed by J. N. Adams. But we have no room to continue the list. *Let all understand* that not one of these fellows ever has or sends any counterfeit money. They get in all the *money* they can, but send nothing in return, unless it be an insignificant photograph. The whole story is told in our October number.....The San Francisco Lottery has "operated." 628 persons have got prizes, and 199,372 others have nothing in return for their $5 or more each.

200,000 people have paid in $1,000,000, of which the Library gets $375,000, the advertisers $125,000, and 628 people are reported to get $500,000, and 199,372 people get nothing—a *very* equitable transaction, is it not? to say nothing of the bad effects upon the morals of the country. .....If any one expects to get for $3.50 a good "Aluminum Watch," he may expect to be swindled. No *such* watches are made.....A long advertisement sent out to the country papers, to be paid *after* three months, offers among other things, "A beautiful English Silver, Solid Double Case Watch, *genuine English full plate jewelled movements*, adjusted regulators, steel cut hands....CORRECT and *serviceable* article, *large or small size*, in complete RUNNING ORDER, with an *elegant* GENT'S VEST CHAIN, *Locket* and KEY, all complete, mailed free for... $5." No living mortal will do any thing like what is here claimed. None but green editors will insert such an advertisement without cash in advance, and no one ought to insert it on any terms.....H. B. Foster, Beach St., N. Y., offers to insure ever so many thousands of dollars to those who will buy Havana lottery tickets of him—but you must send him a little money first. He won't deduct the price of the tickets from the great prize he is sure to send you. S. Fletcher & Co., *alias* Samuel Fletcher, away up at no 76 West 125th St., writes just the same as Foster, and encloses the same grand scheme, substituting his own name at the bottom. Use their circulars, etc., for kindlings—before you are tempted to believe a word of their plausible letters and lose any money, for you will surely lose all sent to them (him).....Hill & Co., up Broadway, are informed that a great many people take their advice, and "hand their tickets over to some other responsible party," and the said many people think the Editors of the *American Agriculturist* just the said responsible party. So we have lots and lots of your tickets on which you offer us for $5.10 "Splendid Tea Sets, valued at $28;" "6 Solid Silver Table Spoons and 6 Solid Silver Tea Spoons, valued at $33," all for $5.10; also "Solid Gold Watches, double case, full jewelled, and patent lever movements," only $5.10 each!!! Where *do* you find green-horns to believe all this? You must do so, or you would not keep sending out these tickets. Well, perhaps you collect fines enough, of 10 cents each for *opening* your tickets, to make it square. If so, send down thirteen of the Solid Gold Watches, eighteen of the Tea Sets, and eight *gross* of the "Solid Silver Spoons," both kinds, and we'll open another couple hundred of your tickets, and strike a balance on fines and payments. Send down early—before Christmas, for we can't go up *that* Hill after the articles, as tempting as you make them *appear*.....Rev. Edward Wilson, as he calls himself, keeps on offering to cure Consumption. We have shown him up too often to need to say more now. Every wise man and woman will throw his deceptive circulars into the fire at once, and do the same with the circulars and letters of the "Howard Association," the "Errors of Youth" man, the "Female complaint" doctors, the circulars to "Married Women," the retired and cured clergymen, such as Joseph T. Inman at the Bible House, and all that class. They are sharp swindlers, ALL of them. Do n't send any two stamps for advice to Married Women....Do n't send any money for anybody's Recipes for "Soap," "Vinegar," "Honey," or any other "Recipe" advertised by circular or in newspapers. You'll be cheated if you do, our word for it.....And now, in imitation of San Francisco, comes a lottery to pay the Debt of the "Nevada School District"—but it has a look of a private swindling scheme and should be let severely alone. .....The "Prairie Whistle" is not exactly a humbug, for any one who learns can imitate a great many animals,—we have often seen it done. As few will learn without personal instruction, it is hardly worth while for any distant party to invest 25c. in it.....RECIPES. Again we caution our readers to carefully avoid sending money to sellers of recipes, whether described in circulars, pamphlets, books, or newspapers, and however large the *promise* of profits... ..It is seldom safe to subscribe for new journals until you see them editorially endorsed by respectable periodicals—especially if they be issued from some out-of-the-way place. Any number of these are started as pure swindles; they are offered at very low rates, with great promises, steel plates, etc.; but after a number or two, the money is pocketed, the premiums not sent, and you can get no answer to inquiries.....We are sorry to see that the good people of Salem, O., have in their midst a man offering such things for sale, as are advertised by Dr. Jesse Wright—things ostensibly for married people, but which are really incentives to licentiousness among the young.....The "Empire Watch Company" advertise watches, oroide gold, silver, etc., at 196 Broadway, and give as references G. P. Rowell & Co., S. M. Pettengill & Co., J. M. Bradstreet & Co., Commercial Agents, etc. We can find no occupied building at 196 Broadway, and the above named parties referred to, assure us that they know no such Company, and have given no permission to refer to them.....*Every* advertising Cancer Doctor is a humbug, sure.....Beware of *all* advertisements of cures or medicines by any "Medical University," or "Institute," or "Infirmary." *Every* one of these issuing advertisements is a swindle,—a quack's dodge to gain confidence among the unwary....Our space is full, with many swindles reserved for next paper.

Seven Kinds of Oats Tested.—Jacob Dunton, of Philadelphia, writes as follows: "Last spring I purchased seven varieties of oats from reliable seedsmen, in quantities varying from 1 peck to 6 bushels. I gave them equal culture, upon the same field, at Chestnut Hills, with the following results. I could see no difference in the Norways, purchased from different parties. As the fancy sorts averaged about $3.50 per bushel, you will be able to judge whether it would be advantageous to continue to plant them.

	Yield from 1 bushel.	*Weights—lbs.*
Common Oats	8.2	27.2
Prince Edward's Island	7.2	29.
New Brunswick	7.	30.
Norway	8.44	30.
Surprise	7.	32.
Nova Scotia	7.	32.
Scotch Potato	7.	32.

Improved Roofing.—We have so many inquires in regard to composition roofing of various kinds that we are constrained to say of the only one now advertised by us, that we believe its claims to superiority are well founded. The Asbestos roofing consists of a strong canvas and a layer of felt, both saturated with a water-proof composition, which contains none of the dead oils of gas-tar, and hence does not rot, but preserves the fibre in its full strength, besides a lining of manilla paper. The whole is compressed into a firm, elastic, leather-like material, which is very different and vastly better than any other roofing we ever saw sold for use in the same way.

Sunflower Seeds for Horses.—"J. H. B.," St. Albans, Vt. We mentioned Sunflower seeds as a remedy for heaves upon the authority of a physician of our acquaintance, living at the West. He mixes the whole seed with the regular feed at night, beginning with a gill and increasing the quantity gradually so that at the end of a week the horse has a pint of them each night; this is continued until the symptoms are relieved.

Cannas and Caladiums.—"Ignoramus," Philadelphia. After the roots are dried off, put them in a box of dry sand and keep in a dry and warm cellar.

Celery.—Mrs. J. D. We have no work especially upon the culture of celery. Henderson's Gardening for Profit gives a full account of the best method. An article from the same author will be found in the *Agriculturist* for June last.

Hawthorn.—"T. F. S.," West Point, Miss. Hawthorn is raised from seed which must be a year in the ground before it will come up. But why bother with Hawthorn which has so many defects and but few good qualities, when you can have Osage Orange, Pyracanth Thorn, Macartney Rose, and others which are quite adapted to your climate.—Hawthorn loses its leaves early, grows very slow, and is a perfect harbor for insects.

Osage Orange.—H. S. Wood. We cannot advise you to try the Osage Orange in Vermont. The Honey-Locust would be a better Hedge plant.

Coit's Beurré Pear.—"R. J. B.," Fairfield Co., O., writes: "Recently you said a good word for Coit's Beurré pear. The quality of the fruit deserves it; but it is a shy bearer, and tardy, on sandstone upland in S. E. Central Ohio, where Bartlett, Flemish Beauty, Howell, Louise Bonne de Jersey, etc., are satisfactory in these respects. To my taste, Flemish Beauty is superior to Coit, and is hardly surpassed by any other, indeed; but it will blight. What variety won't?"

Usefulness of Good Engravings.

Hardly a dozen years ago, a cheap lithograph picture or two, generally sprinkled over with flashy colors, constituted the chief "works of art" to be found in a large proportion of the houses of the people. While these gave a certain degree of pleasure, they certainly did not tend to cultivate true taste. But the recent great attention given to engraving on wood, copper, and steel, the advancement in electrotyping, the remarkable improvements in chromotype, and the very rapid multiplication of illustrated papers, are bringing within the reach of the humblest homes an unlimited supply of very superior pictures. A few dimes will procure enough of these to cover the entire walls of the rude log cabin, or the more commodious home. An engraving will often convey more positive information than could be obtained from ten times the space of printed matter. Implements for the farm and the house are shown to the life by the engraver's tool and printer's ink, almost as distinctly as if one looked at the objects themselves. Good pictures have a refining and elevating influence upon the minds of children as well as of adults. They are silent educators that insensibly tell for good. Knowing and feeling this, our publishers give to the editors almost a *carte blanche*—an untrammeled discretion—in the matter of procuring a large supply of the best quality of pictures for both the *American Agriculturist* and *Hearth and Home*—not black blots, called pictures for want of other name, but really fine, artistic engravings—those that cultivate true taste in the eye and mind, and that both please and instruct. Good judges say that no superior engravings are anywhere else printed. The cost depends upon the amount of work and artistic talent put upon engravings. The uncultivated eye may not at first perceive the difference between a rude cut costing $10 or $15, and one covering no more space that actually costs $100 to $200, or more; but the people are being educated up to this, and we shall try to do our part to promote this education. For the coming year the *Agriculturist* will contain pictures costing $12,000 to $15,000, and *Hearth and Home* those worth $20,000 to $25,000, and our facilities for printing them in the highest style are unsurpassed. These figures seem large; but with 200,000 subscribers and more than a million readers, the cost is so divided as to be endurable, when it would be entirely impracticable with an ordinary circulation. The same holds true in regard to other expenses; and this furnishes an explanation of the seeming impossibility of furnishing so large and expensive a paper at so moderate a price. The reader will readily see that the *American Agriculturist*, and *Hearth and Home*, are beyond competition in the amount and character of the engravings and reading matter they can supply at a small cost, owing to their unequaled circulation, and the superior advantages they can therefore afford.

Bee Notes.—*By M. Quinby.*

Bees that are to be housed should be allowed to fly until steady cold weather sets in. Stocks to remain out should be sheltered from the wind, and stand where the sun can strike them every day. Only strong stocks will do well in old-fashioned wooden hives in the open air. When transferring bees and combs from wooden to straw hives or otherwise, in cold weather, choose a nearly dark room for the operation. Hives in the open air must be thoroughly ventilated. They should be slightly raised, and an inch hole made through the center of the bottom board. Open holes in the top to give egress to the rising moisture and keep out rain and snow. Exclude mice by using wire-cloth, leaving just space enough for the bees at the bottom of the hive.—For wintering in the house the room should be warm. A large, cold room will require at least fifty stocks to keep up the requisite degree of heat. It must be dark and well ventilated. The moisture from the hives with movable frames will pass off through the passages made for the surplus boxes, and these should be left open. Box hives should have holes in the top open, and then be inverted on small sticks so as to secure a current of air between the combs. A dry cellar is as good for wintering bees as a room above ground.—Boxes intended for use another year should be packed away in a dry place. Hives and boxes partially filled should be allowed to freeze in order to destroy the eggs of the moth.

Straw Hives for Wintering Bees.—For the benefit of those using the Quinby hive, or any other hive in which the frames are supported by the bottom board, I wish to say now that they may be arranged for winter with but very little trouble, and combine all the advantages of the straw hive, with many others, for out-door wintering. First, prepare the bottom board by securing ventilation through it in such a manner that it will not become obstructed by any dead bees that happen to drop; then arrange a passage-way for the bees from near the center to the outside entrance; next get out a strip, one inch by an inch and a half, one foot long, and nail a strip of hoop-iron on one edge, projecting one-fourth of an inch; this will support the frames in the same manner as usual; lay this across the bottom, and set one end of the frames on it, hooking fast to the hoop-iron, keeping the same relative position of combs, and all the frames will stand just the other way—across the hive—and be about four inches from every side of the hive; cover the top of the frames with canvas, and then fill with soft straw, hay, or chaff, or even dry sawdust, closely packed, even full; open one of the ventilators near the top, and all the moisture will pass so very slowly through the straw that most of the heat will be retained near the bees; and if they are in good condition to start with, they will be not only safe, but very comfortable all winter.

To Clean a Rusty Plow.—Take a quart of water and pour slowly into it half a pint of sulphuric acid. (The mixture will become quite warm from chemical action, and this is the reason why the acid should be poured slowly into the water rather than the water into the acid.) Wash the mould-board (or any other iron that is rusty) with this weak acid, and let it remain on the iron until it evaporates. Then wash it again. The object is to give time for the acid to dissolve the rust. Then wash with water and you will see where the worst rusty spots are. Apply some more acid and rub those spots with a brick. The acid and the scouring will remove most of the rust. Then wash the mould-board thoroughly with water to remove all the acid and rub it dry. Brush it over with petroleum or other oil, and let it be until spring. When you go to plowing take a bottle of the acid water to the field and apply it every bout to any spots of rust that may remain. The acid and the scouring of the earth will soon make it perfectly bright and smooth. If all iron work be washed over with petroleum as soon as we put our tools, implements, and machines aside for the winter, it will keep them from rusting, and save a great deal of trouble and annoyance, to say nothing of depreciation and loss.

A Plucky Young Farmer.—A Wisconsin farmer's son writes us as follows: "I am 25 years of age. Have a fair amount of pluck, and a pretty good supply of muscle. I am just on the point of buying a farm of 265 acres for $9,000, running into debt for nearly the whole of it. I can have any amount of time to pay for it. Some of the land needs draining. Tiles are very high, but there are plenty of flat stones near the farm that may be had for the hauling. An Englishman offers to dig the ditches and stone them up (I drawing the stones) for 18 cents per rod. Draining is something I know nothing about, except what I have read in the *Agriculturist*. Had I better set him to work?" If the ditches are cut the proper depth, say 2½ to 3 feet, 18 cts. per rod for digging and laying the stones is certainly cheap enough, and if the work is well done it will pay you. We wish you abundant success, and think you are made of the right material for a farmer. We wish you had less land and more capital. Industry, intelligence and pluck, however, will go a great way to make up for the lack of capital.

Market Gardening.—"Hortus," Buffalo, N. Y., asks: "With a moderate capital to purchase and conduct a small fruit and vegetable farm, combined with a fair practical knowledge of the business, do you think there is an opportunity in the immediate vicinity of New York to make a living?—heavy returns on investment not expected. Or do you deem the field already overstocked?"—If "Hortus" is under 40 years of age, and possessed of $2,000, with the additional capital of a fair amount of physical strength and energy to use it—and can keep down his *private* expenses to $500 or $600 a year, there is no doubt of his making a living and something more before the end of ten years. Much, very much depends upon the soil. See article from Peter Henderson, on page 459, in this number of *Amer. Agriculturist*.

Cabbages and Celery.—A. Burton, writes: "I have a piece of land near New York, which is worth rather too much for me to live on, unless I make it bring me something. I want to put it—about two acres—in early cabbages, to be followed by celery. I can get the necessary labor, and am willing to put on the necessary quantity of fertilizers. The only thing that troubles me is, can I get the soil ready *quick* enough? and are commercial fertilizers—Plaster, Guano, etc., sufficient? The ground is an old meadow, plowed last year, and is rather thin and stony."—If you apply Peruvian guano at the rate of one ton to the acre, or bone-dust at the rate of two tons per acre, and if your soil is of fair quality *and free from water*, there is every chance of raising a profitable crop of early cabbages (Wakefield is best) to be followed by celery. Your ground having been plowed up from meadow is in the best possible condition to raise a cabbage crop. The guano or bone-dust is best applied by sowing after plowing in spring, and then thoroughly harrowing in. If you have or can procure cabbage plants that have been wintered over in cold-frames, they would pay best, as they will come in earlier.

Lime and Ashes for a Garden.—"Z. F. H.," of Illinois, asks the proper way to apply lime and ashes to land and prepare it for a fruit and vegetable garden, and the proper quantity to produce best results. Put a bushel of slaked lime to the square rod, or a peck of ashes, broadcast, and harrow or cultivate them in. If done six or eight months before planting, and the ground is thoroughly cultivated, so as to incorporate the lime and ashes with the soil, so much the better. A dressing of well-rotted manure in addition to the lime and ashes will help to "produce the best results."

"Patching" and "Darning."—A Novel Exhibition.—Clothing for the Poor.

I.—On going recently into the residence of a small farmer in Pennsylvania, we found the good man of the house putting a "patch" on his pantaloons. He excused himself by saying that, as his crops were poor, he had to make the old clothes last over; and that as his wife, the daughter of formerly wealthy parents, had not been brought up to sew, she made awkward work of it. It occurred to us that she was a fair sample of a good many thousands of her sisters. There are, in the aggregate, millions of garments annually cast aside, which might be made to do good service if the wives, sisters or daughters of the wearers knew how to put on a "patch" so neatly, as not to mortify the wearers, or the patchers themselves. We have heard of an Agricultural Society giving a prize of $10 for the best patched garment, and the idea strikes us as a very good one. Nine-tenths of the wives of our country (and every girl expects to become a wife) will have far greater need of knowing how to *patch* well than how to make good "patch-work"—such as premiums are usually given for at the fairs. We would like to see every girl and young woman in the country learn how to put a patch neatly on father's or brother's coat or pantaloons. The knees of boys' pantaloons furnish abundant material to practice upon.

II.—New York City is crowded with the poor, who flock in here from all quarters of the world. Many benevolent ladies of our city are united in Associations to feed and clothe them, and every garment they can get is a great blessing to one of these poor shivering creatures.

III.—The above considerations have prompted the Publishers of *Hearth and Home* and *American Agriculturist* to announce a novel EXHIBITION—to be held in their Publishing Building, 245 Broadway, New York—to open on Tuesday, Dec. 20th, 1870, and continue open to the public for three days. The following Prizes will be awarded:

CLASS A.

For Best Specimens of PATCHING (at least two patches) by any girl, not a tailoress, and not over sixteen years old:

First Prize.....$15 Cash.
Second Prize.....10 Cash.
Third Prize.....5 Cash.
Fourth Prize.....*Hearth and Home* for One Year.
Fifth Prize...*American Agriculturist* for One Year.

CLASS B.

For Best Specimens of PATCHING (at least two patches) by any lady, married or single, (not a tailoress,) and over sixteen years old:

First Prize.....$15 Cash.
Second Prize.....10 Cash.
Third Prize.....5 Cash.
Fourth Prize.....*Hearth and Home* for One Year.
Fifth Prize....*American Agriculturist* for One Year.

CLASS C.

For Best Specimens of DARNING on Woollen Clothing, (on at least two places,) by any girl (not a tailoress,) and not over 16 years old:

First Prize.....$15 Cash.
Second Prize.....10 Cash.
Third Prize.....5 Cash.
Fourth Prize.....*Hearth and Home* for One Year.
Fifth Prize....*American Agriculturist* for One Year.

CLASS D.

For Best Specimens of DARNING on Woollen Clothing, (on at least two places,) by any lady, married or single, (not a tailoress,) and over sixteen years old:

First Prize.....$15 Cash.
Second Prize.....10 Cash.
Third Prize.....5 Cash.
Fourth Prize.....*Hearth and Home* for One Year.
Fifth Prize....*American Agriculturist* for One Year.

CLASS E.

For Best Specimens of DARNING Socks or Stockings, (at least one pair,) by any girl not over 16 years old:

First Prize.....$5 Cash.
Second Prize.....*Hearth and Home* for One Year.
Third Prize...*American Agriculturist* for One Year.

CLASS F.

For Best Specimens of DARNING Socks or Stockings, (at least one pair,) by any lady, married or single, and over 16 years old:

First Prize.....$5 Cash.
Second Prize.....*Hearth and Home* for One Year.
Third Prize...*American Agriculturist* for One Year.

The garments contributed to this Exhibition will be given (for Holiday Distribution to the Poor) to the LADIES' FIVE POINT MISSION, or to such other similar associations as may be designated by the individual contributors.—☞ *Note all the following Particulars:*

Each article in every parcel sent in must be marked "for Competition," or "for Exhibition only," and have securely pinned or stitched upon it an envelope containing the *Name* and *P. O. Address* of the contributor, and a statement that the work was done entirely by herself, that she is not a tailoress, whether she is under or over sixteen, and under what Class (A, B, C, D, E or F,) the article is to be entered. When it is specially requested, the name of any contributor, except the prize takers, will not be published.*

The articles may be sent in at any time after December 5th, and before December 15th. The articles will be displayed on the morning of the 20th, at the Office, 245 Broadway, at which time a competent Committee of Ladies will make a thorough examination, and award the prizes, which will be promptly paid and duly published. The articles as they come in will be numbered, together with the envelopes, for reference after the Committee have rendered their decision.

The articles for *competition* in the first four classes may be of coats or pantaloons of any size and of woolen fabric suitable for men or boys in winter, and of any degree of wear, if not useless. Of course all articles will be sent in a cleanly condition. Any garment may have from two to five patches, or darned places, or more if needed.

Articles contributed for the above purposes and marked:

FOR PATCHING EXHIBITION & DISTRIBUTION,
Care of ORANGE JUDD & CO.,
245 BROADWAY, NEW YORK.

may be sent **unpaid**, by the following Companies, viz.:

AMERICAN MERCHANTS UNION COMPANY.
UNITED STATES EXPRESS COMPANY,
NATIONAL EXPRESS COMPANY.
ADAMS EXPRESS COMPANY,

If sent by any other Company, or other conveyance, the carriage must be prepaid or otherwise provided for.

The above offers present a three-fold incentive to the fair daughters of our country. *First*, their efforts at patching or darning neatly will be very useful to themselves. *Second*, they will have a chance to get the cash and the credit included in the Prizes. *Third*, every garment sent will go to help warm some unfortunate son of poverty during the coming winter's cold. Let every one take part in it, and let us have an exhibition of a magnitude that will make it worth going far to see, and one that will gladden the hearts of the good ladies at the Mission, or other kindred institutions thus remembered.

* Any other articles of clothing for destitute men, women, or children may be sent at the same time, for *Distribution*, and we will pass them over to the designated Associations. Such articles, of course, are not to be entered for competition, and they should be folded separately in the parcel sent, and be plainly marked: "for Distribution only."

Essex vs. Berkshire Pigs.—"Do the Essex possess any decided advantages over the small Berkshires?" No; or at least, either of these breeds, if pure, will do so much to improve our common stock that it will make comparatively little difference which is selected. The Essex is remarkably gentle, is more "refined" than the Berkshire, and is believed to be "more thorough-bred," and consequently will impress its characteristics more strongly on common stock. The Berkshire is more active, more disposed to range, and probably will "get his own living" better than the Essex. To breed pure for the butcher we prefer the Berkshire; to cross with common sows, we prefer the Essex.

Percheron Horses.—A gentleman in New Jersey who has recently brought over a pair of Percheron horses, writes us that he knows from experience that they make the very best of agricultural horses. He says there have been twenty-six Norman and Percheron stallions imported into the United States this summer. In ten years he thinks America will have better Percherons than France; for "an American will always buy the best, while a Frenchman willingly sells his."

"When is the best time to Subsoil?"—When you have the least work for your horses. Deep plowing should be done in the autumn, so that the frosts of winter shall mellow the raw soil, but subsoiling does not bring the raw soil to the surface; it merely breaks it up, and we think it makes very little difference whether the work is done in the fall, spring, or summer—or in winter when the ground is not frozen.

Guano Imported into the United States.—For the fiscal year ending June 30, 1869, the value of guano imported into the United States was $204,348; for the year ending June 30, 1870, $1,415,519, or nearly seven times as much. These figures are taken

from the official report of the Government Bureau of Statistics. The greater portion of the guano is used in the Southern States, and these figures indicate how rapidly the agriculture of that section of our country is recovering from the prostration caused by the war.

Horse Papers for Farmers.—No. 11.

In learning to ride, there is no better training for a small boy than ordinary bareback riding, in going to and from pasture, plowing out corn, and carrying bags to the mill. The best teacher he can possibly have for his lessons is a good natured, quiet, easy-going old horse; for what he needs to learn first is an easy familiarity with his new seat. To be able to get on and to stick fast is an important point gained, and bareback riding is a good school in which to acquire it, but little further can be learned. With a full-sized horse, however, it is not easy to get much beyond this, until the boy is fifteen or sixteen, and has a certain length of leg.

When he is large enough to support himself by bearing from the knee upwards, leaving the leg below the knee perfectly free, he can with advantage attempt further progress; and it would be well for the boy and the horse to teach each other. If the horse can be exempted from harness work, all the better. The rider must understand that two important objects are to be sought as the foundation of his success.

I. The horse must be taught to carry his own weight and that of his rider equally on all four of his feet, and to use for the work only the muscles necessary to it, leaving all parts of his body, not in action, perfectly free and supple. A horse that pokes out his nose and carries a stiff neck when traveling is like a boy who works his tongue while writing, or a man who clenches his teeth while lifting a heavy weight. If the neck is stiff, the whole body will be rigid, and the whole position so constrained that graceful movement will be impossible.

II. The rider must learn to attach himself to the horse by the thighs alone. From his seat to his knees he should be unmovable; but from his hips upwards and from his knees downwards, he should be independent of the movements of the horse. The upper part of the body, resting easily on the hips, should assume naturally the constantly changing positions needed for balancing, while the legs below the knees should be free to move at the rider's will, without being used for the purpose of sticking on.

When these two ends are attained, the horse will be a good saddle beast, and the boy will be a good horseman; but their attainment is no easy matter. Even under systematic training, a suitable animal and a naturally graceful and good-tempered lad would not be likely to reach a very satisfactory point in less than six months' time; but the daily progress will be perceptible, and if the young man understands what he is about, he will enjoy every step of his work. It is difficult in a short article even to hint at the course to be pursued, and I can only hope that the little I do say will induce those interested in the subject to get hold of a good book on horse training and riding, and set regularly at work in what seems to me the most delightful of all occupations for a healthy and intelligent youth.

The first thing to be done is to learn the importance of keeping the temper. The utmost patience is indispensable. Every thing that it is proposed to do is new and strange to the horse, and his first impulse at the outset will be one of fear. He must be soothed and coaxed and petted, but rarely, if ever, scolded or punished. Teach him one thing at a time, and teach him that one thing over and over again, and in *successive lessons*. Never proceed to the second step, until he is eager to take the first, and until he takes it unfailingly well. The first lessons should be given on foot, but with saddle on and girths lightly buckled. The earlier lessons should be as follows, each being thoroughly learned before attempting the next.

I. Standing at the left side of the horse's head, take the curb reins near the bit in the left hand, and draw gently backward, and with a whip in the right hand, strike him lightly on the chest. As he moves backward, follow him steadily and keep striking him. When he starts forward, relax the reins, pat him on the neck and encourage him with the voice. Keep this up until he inclines to step forward the moment he feels the pressure on the rein.

II. Standing in front of the horse's face, take one curb rein close to the bit in each hand, push with the right hand and pull with the left (gently but firmly) until the horse turns his head toward the left side, well around to the shoulder. Hold it in that position for a moment, until he champs the bit and relaxes the muscles of the neck. Then bring the head back to its natural position, but let the horse understand that you do it, not he. Perform the same movement in the opposite direction. Repeat this until he will carry his face lightly to the shoulder on either side, the moment he feels the bit turning in his mouth.

III. Standing at the horse's left side, facing to the front, draw the right snaffle rein firmly over his neck close to the shoulder. Pull steadily until he bends his head around toward the right shoulder; then draw on the left curb rein gently, until he holds his face perpendicular, ceases pulling, and champs the bit. Release the snaffle rein and draw his head back to the front. Move to the horse's right shoulder, and turn in the same manner to the left.

IV. Standing at the left side of the saddle, with the right hand upon it, holding the curb rein, pull steadily until the horse ceases resisting and holds his head perpendicular without bearing on the rein.

V. The rider, being mounted, should hold the ends of the snaffle rein in his right hand at the hight of the breast, lay his left hand across them over the horse's shoulder, and bear down with the left hand until the horse yields to the pressure, draws in his head and ceases to bear on the rein; then raise the left hand to release him.

VI. Draw steadily on the right rein of the snaffle until the horse's head is turned round, facing the rider's knee; then use left curb rein to bring the head to a perpendicular position, and when it is held lightly so, draw it back to the front. Perform the same movement to the left.

These six lessons may well occupy six weeks. There should be two lessons a day and no more, and it is better that each lesson should not exceed ten minutes, though the effort should never be given up without at least a slight progress being made. Be the time longer or shorter, nothing further should be attempted until the horse's head will take these positions on the slightest intimation of the rider's intention, so that it may be moved to the right or to the left, or brought in toward the chest by a movement of the little finger. When this is accomplished in a state of rest, teach the horse the same freedom while moving at a walk, and subsequently at a gentle trot. If he inclines, on feeling the pressure of the curb bit, to carry his head too low, pointing his nose toward his knees, it may be brought up to the proper position by extending the right hand to the front and raising up *one rein only* of the snaffle. The curb reins should always be held in the left hand.

Having taught this much thoroughly, teach the horse to move backward without stiffening his neck. In short, persevere until, under all circumstances and in performing whatever movements may be desired, the horse keeps his neck supple and refrains from pulling on the bit; and until his head can be moved about at pleasure without frightening him or fretting him.

Thus far our attention has been given to the horse; but he will never be able to follow our instructions, unless his rider has learned to ride with his seat and not with his hands and legs. If he clasp the horse's belly with his heels, and use the reins as handles to hang on by, he will confuse the best horse in the world; consequently he must get his instruction, without trying at the same time to keep the horse up to the mark. If he can practise his riding at first on another horse, it will be all the better; if not, he must use only the snaffle rein, and use that as little as possible. Riding at the beginning only at a walk, he should swing his legs and his arms and move his head and body freely in all directions, while preserving an unchanging position of the thighs. When he feels perfectly at home in riding at a walk, he should go through the same exercises at a slow and finally at a fast trot, until as much at home in a moving saddle without stirrups as in a chair, and until he feels under no circumstances the slightest inclination to clutch either the reins or the horse's mane for a support, and can ride at a fast trot with the calves of his legs entirely away from the horse's sides.

He can now begin regular riding with the use of the curb rein, and the rest of the instruction for himself and his horse may be only incidental to his pleasure riding. There is much more to be learned about the art of horsemanship, but it would be tiresome here. Any one who has followed my brief instructions thus far, will be interested to go to the books for further details.

I can easily imagine that some, who have waded through the foregoing paragraphs, will deride the idea of such a string of Frenchified nonsense being put into any article written *for farmers*. All right. It is not written for such farmers, but for the large and growing class, who are eager for every thing that can be made use of to add to the attractiveness of the lives of their sons, and who are willing to encourage an intelligent enthusiasm for any healthful and innocent pastime that promises a relief from the monotony of farm life. There is no "fancy" in the system above hinted at. It is the invention of an accomplished master (Baucher), and is the almost sole dependence of the military and civil horsemen of France and Germany. I had more real enjoyment in training horses by it than in all other sports of my boyhood. It makes up for the want of companions. A good horse is a capital substitute for a human friend; and when the teaching is fairly under way, so that palpable results are attained, and the mutual instruction and mutual friendship between the rider and his horse add zest to the pleasure of riding, I fancy that any properly constituted young man is in the way of getting as much real pleasure. Farmers' boys want something to vary the eternal round of duty that makes them chafe so sorely. Let any doubting father give his boy a fair chance and encourage a *passion* for horsemanship. "Herbert's Hints for Horsekeepers" will tell him all he really needs to learn from books about riding, about saddles and bridles, and about Baucher's system of training.

Ogden Farm Papers—No. 12.

"W. C.," of Ohio, sends me the following questions: "1. Can land ever become so compact that underdraining will be of no account? 2. Does the overflowing of land that is underdrained injure the drains and have a tendency to stop them up? We have some land that overflows during freshets, and some that after a freeze, is, at the surface, of the consistency of batter,—like a thin mortar." This latter, he thinks, may be so tenacious of water that draining would do it no good.

I know of no land so compact that draining will not benefit it. A pile of bricks—made of the stiffest clay—which are wet as they come from the machine will, if placed in a close room where there is no circulation of air, wet the floor under them, and the upper tier will be at the end of a few days considerably dried, while the lower tier will have become wetter than at first. The water settles down by its own gravity; passes from particle to particle of the clay and finally runs out on the floor. No *soil* can be more compact than a machine-pressed mass of stiff clay; and water will move much more freely in any arable soil—however compact it may seem—than in compressed brick clay. There is a great difference between the amounts of water that different soils will take up and hold against the force of gravitation; but water so held is contained only within the finer pores of the earth,—in the interiors of the particles (not in the spaces between the particles). Consequently a compacted soil, one that is rammed together so hard that these spaces are obliterated; that is, a soil that is consolidated and kneaded together like dough, will hold more water, by simple absorption, than will one that is finely pulverized and made to occupy more space,—that is, to have more spaces between the finer particles of earth. It is impossible to so drain a heavy clay soil that it will not retain moisture for a much longer time than would a lighter one. Draining alone will produce on such a soil as is described by my correspondent, a much less rapid effect than on one of lighter consistency. But, however slow the action may be, it cannot fail to be decidedly beneficial. Soils are often spoken of as "impervious." That means that water cannot pass through them. If this were possible, such soils could never become wet. If water can get *into* them to make them wet, it can, with equal ease, get *out of* them to leave them dry.

While such a soil as is described will be benefited by drainage alone, the benefit will be greatly hastened and increased if other means are adopted to loosen its texture and to counteract its cohesive tendency. This may best be done by fall plowing, exposure to the frost, repeated cultivation, and above all by the plowing in of green crops. The systematic growth of clover, by means of which the soil is penetrated in all directions by roots that are left to decay after the removal of the crop, is the best of all means for improving its consistency.

If "W. C." wishes to satisfy himself that draining and thorough cultivation will benefit his land, let him fill a cask with some of the worst of it when in its wettest condition, and even add water until it is perfectly saturated. Then cover it over with boards to prevent evaporation and make a series of holes around the bottom of the cask. He will find at the end of a longer or shorter time, that the water has settled down and run off at the openings below, leaving the earth in a *moist* condition, but *not wet*. When it was first put in, it contained so much water that a handful of it could be moulded into a ball and would retain its shape. After the surplus water has passed off this can no longer be done, the earth will crumble beneath the pressure of the hand. There will be no water left in the mass beyond what the finer particles of the clay have absorbed. If after it has become dry this earth is worked over as in plowing, it will become still lighter. If the cask had been tight at the bottom, the earth would have retained its moisture for an indefinite time. This earth is subject to the same laws in the field that affect its condition in the cask. If the field have a tight bottom, the superabundant water will be retained until it is slowly drawn up and evaporated by sun and wind at the surface. If holes be made in its bottom by the introduction of underdrains, the water of saturation will be withdrawn, and the land will become loose and friable. This is the theory of the subject and it will hold good in practice with such modifications as the character of the soil may introduce. If it is a nearly pure clay, devoid of fibrous organic matter, the withdrawal of the water will be slow, though its rapidity will increase from year to year, as the action of the air which follows the descent of the water changes the character of the heavier parts. While it is always to be advised that heavy clays be underdrained, it is equally important, as a matter of profitable cultivation, that every possible means be taken to loosen the soil by cultivation and to add to its porosity by the introduction of organic matter. Better drain and thoroughly cultivate five acres of such land than drain twenty acres and leave the soil to the slow action of the air as the only means of amelioration,—it would pay better both at the outset and in the end.

My answer therefore to the first question is a negative one; but I believe that some land is so compact that practically it will not pay to underdrain it unless additional means be adopted for making it more porous.

The overflowing of underdrained land, if the work has been properly done, will not injure the drains, unless the overflow is accompanied by such a deposit of soil in front of the outlets as will obstruct them. By "properly done," I mean that the tiles should be well laid, on a line of uniform descent, and that the earth should be so well rammed down about them as to leave no possibility that the water will run to them from the surface even in the smallest streams. If underdrains receive even a very slight flow of water directly from the surface, dirt will be washed into them and choke them up.

No matter how great the quantity of water lying on the surface of the field, if the drains are protected against this one danger no appreciable quantity of water will run into them from above. That is not the way in which water reaches them. The floor of a drain tile may be compared to the top of a mill-dam. The rain falling through the air does not deviate from its appointed course to fall toward the top of the dam, but continues directly down to the water and raises the general level until the top of the dam is reached, and then water commences to flow over it. So in the soil: water that reaches its surface has a downward tendency and it will not be turned from its course by the fact that a drain is buried twenty feet from where it falls. It will go right down until it reaches a point where the soil is full of water (what we call the *water-table*). By its volume it raises the water-table until the level of the drain is reached, and then a flow commences. It is not likely that in any soil so compact as to need underdraining, water travels sideways seeking an outlet. It is the raising of the water in the pond in the one case, and of the water-table in the soil in the other, that causes it to flow over the dam or into the drain. It will be seen, therefore, that no amount of water accumulating on the surface is likely to carry obstructions into well-made underdrains.

There is, however, another consideration that is of much consequence. Clay, when it contains too much water, if subjected to motion, forms what is technically called, a "*puddle*," in which condition it is as nearly impervious to water as any unburned earth can be. If a pond-hole is dug in a soil containing considerable clay, and is filled with water during heavy rains, the agitation of the water by winds, puddles the bottom, and causes the water to be retained, or at least, to leak away very slowly indeed. It is likely that the "batter land" spoken of, when covered with water, which is either flowing or is disturbed by winds, will be so puddled that the percolation of the water will be very slow. Surface drains will therefore be necessary to remove the water as rapidly as possible, leaving the surface in a condition to be again pulverized by cultivation, or, at least, by the cracking open that accompanies the drying of all earths containing clay or other constituents that shrink as they lose their water. Whether it will pay "W. C." to underdrain his overflowed lands depends on circumstances and conditions, which can be determined only by personal examination; for with the information given him above, he, knowing the character of the soil and the feasibility of keeping the outlets open during the floods, can decide much better than I can.

Ogden Farm has, however, made one outside speculation, one which at the outset has, I fear, cost it some money. The pasture farm I hired for my young stock had such an immense growth of grass early in the season that I bought about thirty small beef cattle to keep it from running to waste. If we had had plentiful showers all through the season, I have no doubt the result would have been good. As it was, the stock all did well up to about the first of September, and from that time remained stationary until they took a turn and commenced to fall off. About Oct. 20th, they were in such condition that they felt the cold nights more than was good for them. We fed hay in the field for a while, but still they fell off. Then we took them home and put them in the sheds, where they present the sorry appearance of half-starved brutes, and I would be glad to get rid of the whole lot at considerably less than they cost in June. I have lost their keep for four months and must feed them at least a month before they will be worth their original cost. To help matters on, the price of beef has fallen, and these animals are worth less, pound for pound, than I gave for them.

Even this tale of woe carries its valuable moral, and points to soiling as the only *safe* plan for the keeping of stock. In June I had too much grass. I must buy more cattle or lose fodder. Buying cattle to save the grass, I loaded my fields with more stock than they could carry in September, and have literally been supporting them on the flesh I bought on them. If the land had been used for soiling I could have cured its extra growth for fall and winter use, and there would have been no loss. As the farm in question is not in a condition for soiling, it would, of course, have been the wiser plan to have kept it understocked; but who could have foreseen such a drouth as we have had?

The Wolverine.—(*Gulo luscus.*)

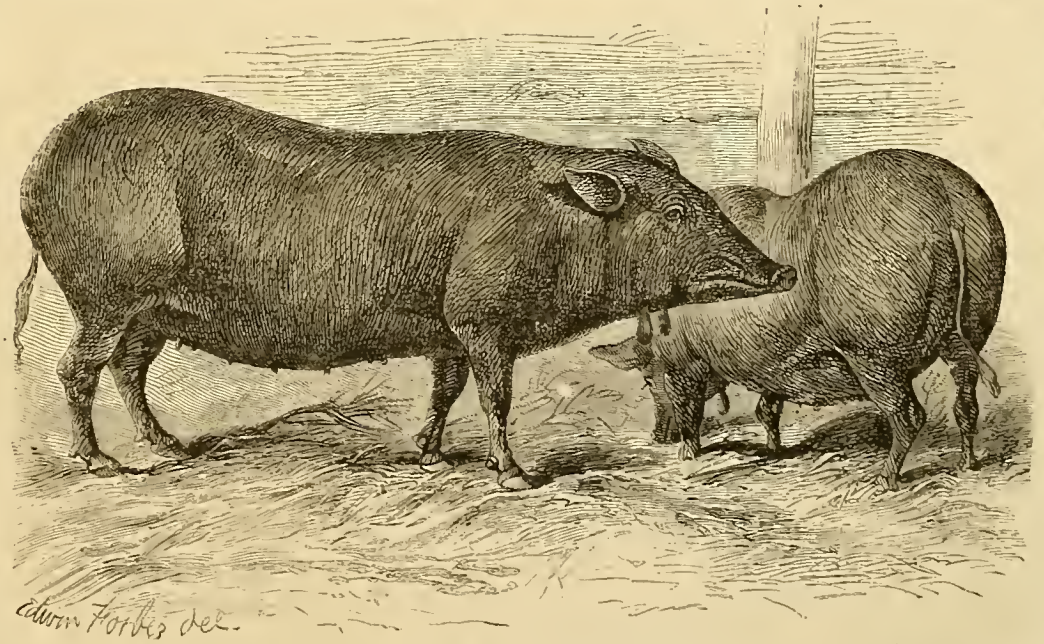
The Wolverine, now rare in the United States, but abundant further North, is probably identical with the Glutton of Northern Europe and Asia. Some naturalists have even endeavored to establish two species on this Continent, but as the differences depend almost solely upon color, the new species could not be accepted. The Wolverine is mercilessly slaughtered by hunters whenever found, and hunted relentlessly where its presence is suspected, not because of its value, for its fur is of little account, but for its destruction, as it causes the trappers great damage by destroying the lines of Sable traps for the sake of the bait. The animal is about three feet long, with a tail six inches in length, covered with long hairs. The head is broad and thick, but the muzzle sharp. The feet are five-clawed, and very large, giving the animal the ability to walk upon the snow. So large are they that its tracks are occasionally mistaken for those of the black bear. In color, different individuals vary greatly. The muzzle is dark to the eyebrows, across which a lighter band passes, which extends down upon the side and passes over the rump. The rest of the body is dark brown above, and the legs, tail, and under parts are nearly black. In some of its characteristics the Wolverine closely resembles the bear, and it was regarded as a bear by Linnæus; now, however, our best naturalists classify it with the otters and weasels, with which it has apparently less affinity. It may, indeed, be regarded as forming with badgers and raccoons, a chain of associating links between the more positively marked animals of these families. The female has usually but two young ones at a litter, hence the species does not multiply rapidly, and has gradually of late years become extinct over a large part of the Union where it once abounded. It is said to have been common in the mountains of Tennessee and Carolina, but is now rare, even in Michigan. Most of the marvelous tales told of the Glutton and Wolverine, are purely fiction, or have a basis only in the fact of the Lynx or some other animal having been mistaken for this one. It has a very acute sense of smell, and will scent out the *caches*, or places where arctic hunters deposit their provisions, and its strength is so great that it will often dig under or uncover them, though loaded down with logs and stones. It climbs trees, but is not at home in them. On the whole, it is one of those few animals which are of no use to man, and with so many hurtful traits that its extermination will not be regretted.

THE WOLVERINE.—(*Gulo luscus.*)

Swine of the South Sea Islands.

We have been much interested lately in seeing and learning the peculiarities and merits of some swine from the Southern Pacific Islands, imported by Mr. Jas. P. Swain, of Bronxville, N. Y., who is known to the readers of the *Agriculturist* as a breeder of discrimination, and on the lookout for valuable neglected breeds, crosses, and points, in our domestic animals. The pigs, shown in the engraving, are young, of breeding age, perhaps a year old, and weigh about 150 pounds. The request for further information elicits the following from Mr. Swain:

"You ask for information in regard to South Sea Island Pigs. Of one thing I can answer you, your artist has made a most truthful drawing of them, even to the peculiar pigish expression of their faces. As to the origin of these pigs, I must refer you to some one more learned in the science of pigology. The Hon. S. N. Mason says that these pigs were plenty in all the islands fifty years ago, so plenty that four yards of calico would purchase a pig weighing fifty pounds, and three yards one of seventy-five pounds, and two yards one weighing over one hundred pounds. A pig of fifty pounds was large enough for a feast, and a larger one was more trouble to kill and cook and not so tender. Mason found them on the newly discovered islands, under and south of the Equator, and plenty on all those islands, and does not think there was time after the voyages of Capt. Cook to so thoroughly disseminate them. They have been left by our whale ships at the island of Barbadoes, and now they are quite plenty there. Their meat is unquestionably the sweetest of any pork known. I imported some about twenty years ago, gave them away freely, crossed them with others, and was better pleased with them than any other breed I ever tried. My neighbors liked them, but as they did not cost any thing, they took no care of them, and they became extinct in a few years, or so mingled with others, that they are no longer known. You will see that they are, unlike the wild pigs of Europe, heavy in the hind-quarters, while the wild boar is heavy in the fore-quarters. I think there is a slight resemblance between these and the China and Sandwich Island pigs. I now intend to cross these pigs with Suffolks, and sell the pigs at a first-rate, humbug price—say three or four times as much as they are worth, and see if they will not be appreciated. I should judge that every thing in the Essex that is valued came from this breed of pigs. But as these pigs were never owned nor bred by H. R. H. Prince Albert, Earl Ducie, or Lord Wenlock—were never exhibited at any Royal Agricultural Show, I fear they will not be much valued."



SOUTH SEA ISLAND SWINE.

Walks and Talks on the Farm—No. 84.

The Deacon was appointed one of the judges on implements at our County Fair. One of his associates failed to appear, and he got the President to appoint me in his place. "It won't take you more than an hour," said the Deacon, and so I consented. *It took us two whole days*—and hard work at that! We had to judge everything;—from a churn to a steam thrashing machine. There ought to have been at least three committees; say, one, on implements for cultivating the land, and for sowing seeds and manures; another, on implements for harvesting, including reapers and mowers, rakes, tedders, loading and unloading apparatus, corn huskers, potato diggers, etc.; and the third, on all other articles not included in the above. This would divide up the work and give us time to do justice to the exhibitors and to the public. As it is, our decisions are a farce. There were half a dozen potato diggers on the ground, one here and another there, and we walked from one to the other, and tried to make up our minds which was the best. Then a man came to us to say that he had a potato digger in Mechanics Hall that he was exceedingly anxious that we should examine. There was no opportunity for a field trial, but this man had got two or three quarts of soil spread out on a plank and was running his machine, or rather a model of it, up and down the plank to show how splendidly it would work. This was the only "trial" of potato diggers we had. We hit on a very ingenious way of coming to a decision. We threw this one out because it was only a model; then another because it was too complicated; and then another because it cost too much; then another because we did not like the looks of it; and so on until there was but one left, and to this we awarded the prize! When we came to the reapers and mowers, separate and combined, we found half a dozen of the most celebrated machines, which we were asked to look at and say which was the best. We gave it up; and went to the managers and told them that it was impossible for us, in the short time we could spare, and without actual trial in the field, to decide as to the relative merits of these machines. "But," they said, "we have offered a prize and you must award it to some one." "Can't you agree?" asked the Secretary. "Oh, yes," we replied, "we all agree that, under the circumstances, it is impossible to make any satisfactory decision." "Well," said the President, with a merry twinkle in his eye, "is not one of them painted a little better than the others? Give *that* the prize." Seriously, this whole subject of awarding prizes at Fairs requires attention.

At the Fair a young man from New York was distributing the Rural New Yorker and gave me a copy. In it I found some remarks from Dr. Randall, the distinguished advocate of American Merinos, in regard to the "herding" qualities of long-wooled sheep. Between you and me, the remarks I made on this subject and which led to this discussion, had no more reference to Dr. Randall than to the man in the moon. I was speaking of a remark actually made to me by a farmer of this County, who gravely assured me that I could not keep over two or three dozen Cotswold sheep in one flock. I pronounced this idea sheer and unadulterated nonsense. But I did not then know that any one so distinguished as Dr. Randall entertained such an idea, while it turns out that he is the father of it, and that my neighbor was only repeating what he had learned from the teachings of the Doctor. Of course I will apologize. I used the words "sheer and unadulterated nonsense," in a Pickwickian sense. And now let me ask the Doctor *why* long-wooled sheep will not "herd" well. He has, it seems, asserted over and over again in his writings that they will not, and now turns round and with a patronizing air asks the long-wooled breeders to prove that they will. Some of them overlook the sophistry of the argument and are bringing forward evidence to disprove a charge that rests only on the Doctor's assertion. "General repute," says the Doctor, "is, in such cases, a species of evidence;" but the Doctor first creates this general opinion, and then quotes this general opinion as evidence! He says he does not know any thing experimentally about long-wooled sheep, but has always heard and believed that they will not "herd" well. He does not tell us *why*. We infer that he thinks the length of the wool has something to do with it. "Merinos, with short wool," he says, "herd well; South-Downs, with medium wool, not so well; and Cotswolds, Leicesters, and Lincolns, with long-wool, not at all." The Doctor should explain why.

But seriously, I suppose the truth of the matter is this: The *improved* long-wooled sheep will not bear neglect as well as the unimproved Merino. But will one of Mr. Hammond's choice, high-bred, "improved" American Merinos stand neglect any better than a Cotswold, or a South Down? Will it do any better on low, wet land, or on coarse herbage? Will it thrive any better on a fermenting manure heap? Instead of telling farmers that improved long-wooled sheep will not bear "herding"—that they cannot be kept in large flocks—it would be better to tell them that they will not bear neglect, starvation, and generally bad treatment, as well as common Merinos. This would be true, and it is true of all improved animals, or for that matter, of all choice varieties of plants, seeds, and fruits. If Dr. Randall uses the term "herding" in this sense, I quite agree with him; but it would be much better to use some other term, as this one conveys no distinct idea—or if it does, it is an erroneous one. It confounds cause and effect. Some one will be telling us by and by that Shorthorns and Devons will not "herd" as well as the Texas cattle—and there would be just as much sense and meaning in the term as there is when it is said that Cotswolds will not "herd" as well as Merinos.

On Mr. Lawes' farm at Rothamstead, the first winter I was there, one hundred and twenty Hampshire Down wether lambs were put "on the boards," under a thatched shed, about the first of October, and never taken out until they were ripe for the butcher; and to the best of my recollection the whole lot, at about a year old, averaged twelve stones, or 96 lbs. dressed weight each. I forget the exact size of the shed, but should say it was about 10 feet deep with a feeding trough in front; and that the length of the shed was only a little more than was necessary to allow each sheep to stand at the trough and eat. Never did sheep do better. "Ah, but," I hear the Doctor reply, "these were Hampshire Downs, and this breed 'herds' better than the Cotswolds." But all that need be said in reply to this is that Mr. Lawes' celebrated experiments on the "fattening qualities of the different breeds of sheep" were made in similar sheds, and that the Cotswolds not only remained healthy, but gained much more than any other breed. Can you keep a greater weight of carcass in one of these sheds with Merino sheep than with Cotswolds; and will they stand *this* kind of "herding" any better? Ask Jurian Winne. He feeds about a thousand sheep every winter, long-wools and Merinos, and keeps them in very close quarters, and the long-wools do better than the Merinos—or at any rate, he says he can make twice as much money in fattening them as he can from the Merinos. But mark you, Mr. Winne gives his sheep the best of care and attention, and this is all there is to the question. If they have the necessary food, given regularly and so distributed that each sheep can get its due proportion; if their apartments are kept well ventilated, and free from all fermenting manure; long-wooled sheep will "herd" just as well or better than Merinos. Small flocks are desirable simply because of the greater ease of attending to these particulars.

The great secret of success in the winter fattening and management of sheep is to *attend to them yourself*. A hired man who will feed at a given hour every day, and in the accustomed order; who will exercise a little judgment as to the amount required—feeding a little more grain and hay during a cold, stormy day, than during a warm one; who will see that the sheep never want for water, and that they never have to drink water that is reduced almost to the freezing point by snow and ice, but who will, on the contrary, pump them fresh water three or four times a day, and always at a fixed hour; a man who knows how to fodder the sheep in such a way that they are tempted to eat as much as they can possibly digest, without leaving any to get stale in the racks; a man that will litter the sheds and yards two or three times a day, doing it with judgment, and never allowing any part to get dirty, but having at all times a nice, clean bed for the sheep to lie on;—a man that will do all this, and who has a quick eye to detect the slightest symptoms of disease or lameness, want of appetite, derangement of the stomach and bowels, nervous restlessness, etc.;—a man that can tell, from the eyes and ears and general aspect that a sheep is not doing well, and who has promptness and energy to separate that sheep at once from the flock, and give it the requisite attention;—a man, I say, that will do this, is a treasure indeed. I never hope to find such a man, ready made. Possibly by taking a bright, intelligent boy that is willing to learn, you can educate him up to it.

This is the real reason why so few of our breeders of improved stock ever attain eminent success. They are generally men of wealth who do not attend personally to their stock. They pay large prices for the best animals, but cannot get them properly attended to. Taking this view of the matter, does it not seem a pity that intelligent farmers who take care of their own animals should waste their time in attending poor stock? When we think how difficult it is to hire this kind of care, judgment, and attention, it would seem that a farmer could raise much better animals than those breeders who leave their stock to the care of men not personally interested in them.

"I am surprised that you do not raise more roots and fat more cattle in winter," said a Canadian farmer, who was here yesterday. I told him that raising roots was work that we were not accustomed to, and that labor was so high we did not think it would pay. He said that on his farm, taking into consideration the manure obtained and the condition of the land after the roots were removed, there was no other crop that paid so well. He raises about five acres of roots, puts about half of them into the barn cellar, or all it will hold, and pits the others in

the field, just as we do potatoes, only with far less care and labor. Last fall he bought half a dozen head of four-year-old steers, for $31 per head. He fed them hay and roots with a little pea and oat meal until March, and then sold them for $85 per head. The great point, he says, is to get well-bred, thrifty steers, and the fatter they are the better. This is undoubtedly true, and it is also evident that he did well in fattening the cattle. But how is it about those who rear and feed well-bred cattle for four years and then sell them for $31? Here the butchers will often pay $15 for a well-bred calf, two months old. This would leave $16 for keeping a steer four years. Where does the profit come in?

A prominent Western farmer writes me: "The 'Pig' show at the Illinois State Fair was a big thing—over one thousand animals being on exhibition. The Berkshires were decidedly the best animals, and in fact they were the only ones that I thought desirable to breed. The Magee and Chesters were out in large force, but they were too coarse, and moreover, lacked uniformity."—I think this is the truth of the matter. But it is useless to fight the large breeds; and for one I am glad to see them introduced all over the country. They are strong, vigorous hogs, and just the thing to cross with the fine, small-boned thorough-breds. From what little I have seen of them I would not accept a litter of Magee pigs, two months old, as a gift, if I was compelled to keep them to maturity, and then sell them for pork. I would like very well to buy a lot of these hogs at twenty months old, if in a thrifty condition, and shut them up to fatten; just as I would like to buy some thrifty, four-year-old steers for $31 a head and shut them up to fatten. But I would not like to keep a steer four years for $31; neither would I like to keep one of these large, coarse hogs for twenty months to make him weigh 300 lbs., worth at 7 cents per lb., $21. This is less than twenty-five cents a pound for his keep. But shut up such a hog and feed him all he will eat for four months and he will then weigh 500 lbs., and be worth $50 or more. This would pay the feeder very well, just as the steers did; but how is it with the man who raises them? Depend upon it, in raising animals for the butcher, *early maturity* is the first requisite.

I say, *for the butcher*, and it is important to bear this distinction in mind. If we kept a hog to do the churning, or a steer for the yoke, we should want tough muscles, just as we do in the case of horses. The oftener muscles are formed and transformed and formed again, the tougher and stronger they become, and it is for this reason that we require time and exercise. It will not do to force a horse or a working ox, when young, as we force an animal intended for the butcher. In the latter case we do not want any of the flesh we have laid on, to be transformed back again into blood, and be formed over again from the food; and while we cannot entirely prevent this, we can lessen it as much as possible by high feeding, and breeding for early maturity. But in horses our object is entirely different. We must give more time and exercise for developing and strengthening the muscles.

The year which is now rapidly coming to a close has not been a brilliant one to many of us agriculturally. Wheat, barley, and oats, in this neighborhood, were decidedly below an average, and prices do not at all correspond with the falling off in the yield, nor with the price of labor and other expenses. Hay is fully one-third less than last year, but the quality of the clover hay is very superior. Those who have timothy hay to sell will probably obtain a high price for it before spring,—or rather before summer, for it should never be forgotten that in this latitude we have to fodder our stock nearly the whole of the spring months. Straw is light, but like the hay, the quality with us is far better than that of the rainy season of 1869; and for food, I think our crop of straw is worth more, though of far less bulk, than that of last year. We must make the best of it, by feeding it out in connection with grain. Straw and a little grain fed with judgment, will winter sheep and horses, and probably cows, though I am not so sure on that point, much more cheaply than hay alone, and the stock will do better. Potatoes are a light crop, but prices are good. This is the best paying crop I have on my farm this year. Though like many others—scared at the difficulty and expense of getting them dug—I only planted about half the usual area. Corn is capital—with me, never so good before in quantity and quality. And so of the stalks, but in this section we had seven continuous days of rain the early part of October, while the weather was very warm, and it seriously damaged the stalks. I managed, however, to get them all into the stacks in good order, and by thatching them with a little straw on the top I hope to make them go a good way towards carrying the cows through the winter months, and thus save the hay for the spring. Stalks are excellent food for cows, and if *not husked clean*, so much the better. If all the corn, however, is in the crib, shell it, and grind it and let the cows have a couple of quarts of meal a day, with or without some straw, and next spring or summer they will pay you a high price for it. Apples were an immense crop, and brought little more than the expense of picking, barreling, and drawing to market. I should not be surprised, however, if they bring a fair price in the spring. The winter fruit ripened two or three weeks earlier than usual, and the high wind of Oct. 17–18, blew off thousands of barrels. I doubt if more than half the crop finds its way to market. The low price will stimulate consumption, and by spring it may be found that notwithstanding the enormous crop we have no good apples to spare. The "pig" crop was a profitable one to those who fed their fall pigs liberally through the winter, and were not afraid of giving them, in addition to a good clover pasture, corn enough to keep them fat throughout the summer, and make them ripe for the butcher before cold weather set in. How it will be with the "hog" crop of the West, I cannot say; but if prices keep up, as I sincerely hope they may, the farmers in the great corn growing sections of the West must make a nice thing of it.

Will pigs continue as scarce and high for a few years to come as for a few years past, is a question the Deacon and I often discuss. History says, "No." The Deacon says, "Yes." Thirty years ago there was as much excitement among pig breeders as there is now. But in two or three years the price of pork declined so low that a pair of Berkshire pigs, which, during the excitement, would have brought a dollar a pound, could hardly be given away. I heard of a Kentuckian who recently paid $500 in gold to a Canadian breeder, for a pair of Berkshires. From what I see and hear at the Fairs, I am inclined to think there is as much jockeying in pigs as in horses. The hair on one of the pigs at the Canada Fair was said to have been dyed. The Deacon thinks there will be no serious break in the pork market now, because we have access to all the markets of the world, and American pork has an established reputation, which was formerly not the case. There is some truth in this, and yet I look for lower prices. One of the most embarrassing features of our agriculture is the general tendency to rush into one thing, to the exclusion of all others, because for the time being it happens to be unusually profitable. We could raise double the number of pigs we do now without glutting the market, *provided* we adopt the English system of selling a large proportion of them for fresh pork when about four months old. If the agricultural papers and the Department of Agriculture will keep us correctly informed of the number of pigs in the country, and if farmers would raise pigs that can be fattened at any age, we could easily prevent an excessive hog crop and a serious decline in prices, by killing our pigs at four or five months old, and supplying the best butchers in the large cities with choice, fresh pork. Properly conducted no branch of farming will pay better than this. New York, Boston, and Philadelphia, will pay almost any price for choice meat. They are the best markets in the world. The last time I was in New York, Col. Weld, of the *Agriculturist*, and myself, spent some hours in Washington Market, and we did not see a single pig of the kind I am talking about—viz., a small-boned pig, not over four months old, that dresses 60 or 65 lbs. When once known, such pigs will be in demand at profitable prices. At present, we cannot afford to sell them at this age, because pigs are so scarce; but as soon as we become in the least overstocked, we should know what to do with them. Let the West, with its cheap corn, raise large hogs for the pork barrels, if such are found the most profitable; while we at the East should raise the fine-boned, early-maturing, small-breeds, to supply this demand for fresh pork. Of course, if not wanted for fresh pork, they can be kept until nine months or a year old, and they will then make the best of salt pork and hams, with lard of the choicest quality.

The difference between the large and small breeds was well illustrated at the N. Y. State Fair. There was a large Magee hog, two years old, that weighed over 900 lbs., and in an adjoining pen a full grown Essex that would weigh not over 450 lbs. There was also a pen of Magee pigs, six months old, and in an adjoining pen some pigs of about the same age, a cross between the Essex and Berkshire. These pigs, I think, would have dressed as much again as the Magees. In other words, at two years old, a Magee hog can be made to weigh as much again as an Essex of the same age; but at six months old, the "small-breeds" will weigh more than the large breed. Or at any rate it was so in this case. And the proportion of bone and offal in the one was vastly greater than in the other. If both these lots of pigs had been killed at this age, the consumer could well afford to pay three cents a pound more for the large "small-breed" than for the small, half-fat, "large breed."

Never ask what one of the mutton breeds of sheep will weigh at three years old, but what he will weigh at twelve or fifteen months; and so of cattle and pigs. There should be no exception to this rule in all animals intended solely for the butcher, and more especially when they are to be kept on high-priced land.

"Did I win the turkey?" Yes, the Deacon owned up that I beat him on corn this year.

and he gave us a bushel of splendid quinces into the bargain. The Deacon is one of those thrifty farmers who have a long row of quince bushes, and takes care of them. Snug buildings, with every thing in its place, a good crop of corn, free from weeds, cut up, husked and cribbed in good season, with a row of quince bushes loaded with yellow fruit, are always associated in my mind with intelligence, thrift, and comfort.——And I am sorry to confess that I have not a quince bush on my farm! Still, I beat the Deacon on corn, and mean to do it again. He thinks that the past summer was so hot that corn in drills had a much better chance of ripening than would be the case in ordinary seasons. And there is some truth in this. But I think if you can *make the land rich enough*, and keep it clean, we can grow corn in drills, even in ordinary summers. And so of potatoes. If the land is poor and weedy, plant in hills $3^1|_2$ feet apart, and cultivate both ways. But if the land is rich enough to grow 300 bushels per acre, plant in rows, $3^1|_2$ feet one way, and drop the seed 12 or 15 inches apart in the rows. You can certainly get a much bigger crop this way than by planting in hills; but the land must be made rich and dry, and the potatoes planted in good season.

Home-made Horse-powers.

One of our readers at the far South, who lives off the lines of railway and water-carriage, wishes to avoid the purchase and costly transportation of a horse-power, and asks for a plan by which one may be made. Horse-powers for moving agricultural machines, such as thrashers, saws, feed-cutters, etc., require speed rather than great power, hence the gearing is accommodated to that object, and is very different from the slower and more powerful motion required upon a capstan or in the brick-yard. The application of the power of the horse is, however, the same, and it is not improbable that our readers who wish to set up a horse-power for thrashing, sawing wood, or grinding apples may find pieces of machines in their neighborhoods, now of little value, which they can turn to account.

We give engravings of two sweep horse-powers, from one of which the power is taken from above, leaving the ground clear, while from the other the power is taken from the ground level as nearly as possible. Both are intended for use under a building or shed. In

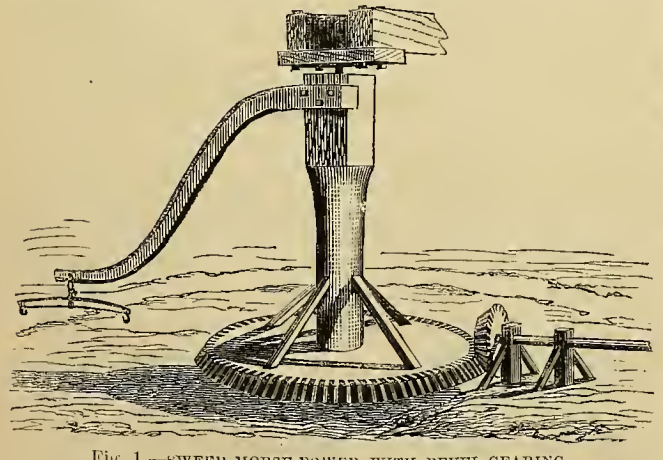


Fig. 1.—SWEEP HORSE-POWER WITH BEVEL-GEARING.

both, also, the posts are of a hight to accommodate the room—say 7 or 8 feet. They are held in position by strong pins of iron, with cross-arms let into the posts at each end, and revolving in oak bearings above and below. These posts are about one foot square at one end and rounded at the other. The sweep to which the

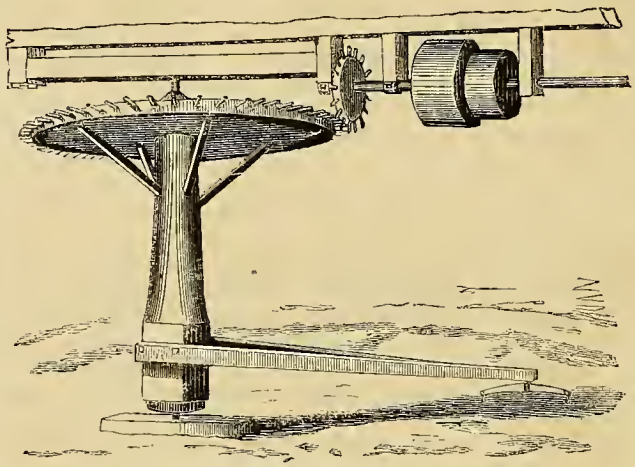


Fig. 2.—SWEEP HORSE-POWER WITH PIN-GEARING.

horse is attached, shown in the engraving, fig. 1, should be made of a crooked stick of any hard wood, ash or oak would probably be best, and either would stand the strain if it were to be worked down to about $4^1|_2$ to 5 inches square at the upper end, and 3 inches square at the other. It is much more convenient to use such a sweep, than one attached to the post so low down that a man cannot stand erect under it. The sweep should be let half its thickness into the post and secured in place by two strong bolts with nuts. The periphery of the bevelled wheels should either be of iron, cast in segments and bolted to the wooden wheel, or cast-iron segments with sockets into which teeth of oak are set. This makes not only a very durable

Fig. 3.—POLE AND BRACE FOR SWEEP.

gearing, but one which may be easily repaired, should a tooth become much worn or broken. It is very much to be preferred to the pin-gearing shown in figure 2. The castings may be obtained at any good foundry. The rod which conveys the power may be either of wood or of iron, the latter is preferable, and it should be set low, in order that the horses may easily step over. The track may properly be raised at the point where the rod crosses.

The pin-gearing shown in figure 2, works well, provided the strain upon it is even and not very great. The holes for the pins must be bored with great accuracy or the motion of the machinery will be unsteady. It is much better to have the gearing above than on the ground, if the power is to be employed upon the floor above. The form of sweep used in this, with the manner of bracing and bolting to the shaft, is shown in figure 3. The sweep may be of ash, hickory, cedar, or any moderately tough and somewhat elastic wood. The brace stiffens it greatly, and one of the bolts should pass through both the pole and the brace. The length of the sweeps is generally about 10 feet, though larger ones would in some cases be better, and much shorter ones are often used.

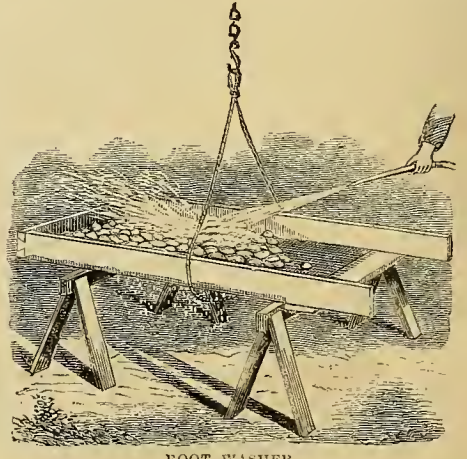
When sweep horse-powers are set up in the open air, a strong frame is made of four posts, connecting an upper frame with a lower and larger one, made of timbers embedded in the earth or in stone-work. The frame encloses a gearing like the one shown in figure 1.

Washing Roots.

The habit of half washing roots, which we feed to cattle, pigs and sheep, is too prevalent; we confess to many infractions of the rule of cleanliness and economy ourselves in feeding, but are entirely satisfied that it is a losing practice. Earth, soil, dirt, is very well in its place, and no doubt all of our domestic animals enjoy and are benefited when they "bite the dust," as they do now and then when they have an opportunity. It is, however, a very different thing to *boil* the dirt, or to season turnips with gravel. The discomfort which every one feels when he finds a particle of grit in his food ought to suggest the humanity of washing thoroughly all the roots fed to stock.

We have in the agricultural stores a root-washing apparatus, made of a cylinder of coarse, woven wire, which revolves by means of a crank in a trough of water. This is rather expensive, and we have found a very simple contrivance equally effective. A common coal or sand screen is laid flat upon two wooden horses, a bushel of roots at a time is thrown upon it, and spread out. Then, with a short hose and pipe attached to our submerged pump, (the same offered upon our premium list,) we direct a stream of water upon them, which thoroughly cleans off all adhering soil. If one end be lifted and jarred down a few times the roots will change places and expose new surfaces to the water. We shall have occasion soon to wash a cart-load at a time, and shall proceed thus:

The cart will be brought to the pump, and the roots thoroughly wetted and allowed to soak for an hour. The screen will be placed conveniently, and slung by a rope and chain to a limb over head. Then a sledge with a box upon it will be drawn to the spot. The roots will be shoveled from the cart into the screen, and as soon as washed, the screen will be swung around and they will be dumped into the sledge.



ROOT WASHER.

In drawing them over bare ground to the barn or cattle sheds, the horses will hardly draw as much as they will upon a cart; but it will be twice easier than the roots can be handled and moved in any other way.

A Brick Smoke-House and Ash-House.

Safety from fire is or ought to be carefully considered in putting up any structure about the place, and in deciding where to put wood-ashes when removed from the stove or fireplace. Smoke-houses are peculiarly liable to take fire, if they are of wood, and such are a continual annoyance and care, during the season when they are most in use. At other times they are

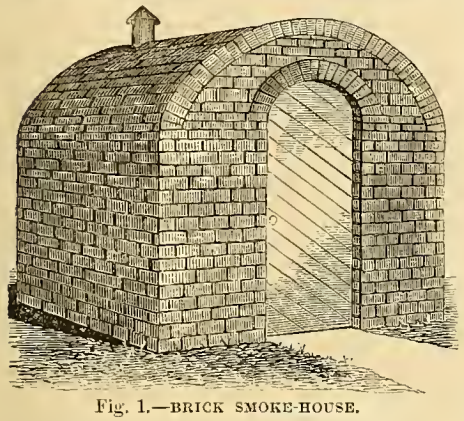


Fig. 1.—BRICK SMOKE-HOUSE.

useless except to hang the hams and bacon in to keep the flies away. Smoke-houses ought to be built of brick, if we would not be made uncomfortable by them from fear of fire, and it is altogether best to have no wood about them. Fig. 1 represents a brick smoke-house, 7 feet high in the clear, 7 feet 8 inches high outside, and 7 by 8 feet on the ground. The walls and arch are one brick (8 inches) thick throughout, the whole standing upon a foundation bed of stone, not less than one foot deep, and extending one foot outside the walls on all sides. This is covered with gravel, and topped with clay, after the house is done, which secures a dry, hard floor. The roof is laid upon an arch of boards, in any good, strong mortar. When done, the arch of wood is removed, and strips of hoop-iron having tenter-hooks attached to them, are set in and fastened to the brick arch by key-bolts passing through and keyed on the inside. (See figure 2.) The roof is covered with a coat of mortar mixed with cement and "floated" down smooth. At the rear of the house a chimney should be placed, having an opening at the bottom, and also near the top. The lower opening is kept partly open all the time, but closed with wire-cloth, if mice find their way in. The upper one is opened only when the room is likely to get too hot. If stone slabs of two feet or more in width, and of convenient size are obtainable, they may be set up so as to give plenty of room upon the floor to stand when hanging meat and making the fire, while there will be room behind the slabs for two or more loads of ashes. Besides, this is very convenient, because smoked meats are better kept, when buried in ashes than in any other way.

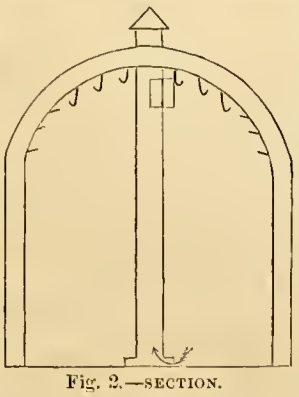


Fig. 2.—SECTION.

How far to Haul Peat for Manure.—When peat, or muck, is thrown out of the bed in summer and allowed to dry, it usually becomes quite hard and not easily broken up, even by the freezing of winter, unless again thoroughly water-soaked. Peat thrown out in the autumn or winter will be thoroughly crumbled by the action of the weather by spring, and may be drawn away as soon as it is dry enough, at any convenient time during the summer. It is very poor policy to haul water very far, especially if it is enclosed in peat, which you will have to dry wholly or in part before it can be used. In the condition called dry, it contains usually some 10 or 12 per cent of water; but this is little, compared with the 50 per cent or more, it contains, when freshly dug. The composition of peat, as regards the comparative quantities of organic and inorganic matters, varies greatly; but in those peats in which sand and earth are not obvious constituents, we may assume that there is about 60 per cent of vegetable matter, which contains nearly 2 per cent of ammonia. And it would be fair to assume an average of $1^1/_2$ per cent of this substance in the peaty deposits which are accessible to most farmers. Barn-yard manure as usually hauled does not contain half so much ammonia, for it is much wetter, but a good compost heap is frequently equally rich. Barn-yard manure is richer in potash and phosphoric acid, and is really better as a regular plant-food; but the variation in analyses and the general experience of farmers, we think, clearly lead to the decision that load for load, one is worth as much as the other; and hence the farmer can afford to haul one as far as the other, and to pay as much for it, provided it be dug and nearly dry. If it can be taken home as a return load when otherwise the teams would come back without one, it will pay well to haul it four miles. To go for it alone, would make it cost a good deal more, and few farmers would think they could go much more than half that distance, if so far.

Pumpkins as a Stolen Crop.

We have seen fewer of the yellow orbs than usual this season, on account of the drouth. We could wish that we had seen the last of them. It is about time that pumpkins were retired from service, and entered upon the fossil list. If any fossil farmers still wish to cultivate them, let them devote a piece of ground specially to the purpose, rather than cumber the cornfield and the potato patch with them. Even when they are planted at the first weeding in June, they soon spread over the intervals between the rows, and seriously interfere with cultivation. The profit of raising corn depends very much upon the thorough cultivation it gets in the month of July. Vines cannot help obstructing the hoe and cultivator. Then they make their growth at the same time as the corn, and must draw upon the same constituents in the soil that nourish the corn. The yield must be diminished. Turnips sown at the last cultivating in August only just get started when the corn is finished, and make nearly all their growth in the fall. Then pumpkins are of very little value when they are raised. For pies they are worthless beside the Hubbard or Marrow squash. The squash should have the ground on the principle of survival of the fittest. The pumpkin is used for making milk and beef. The corn that could be raised in its stead is worth more. Squashes are better. A stolen crop of turnips would be twice as valuable, and would be better for the land. Not even for Thanksgiving's sake and the immortal memory of pumpkin pies, can we afford to cultivate this vegetable. Its room is better than its company.

CONNECTICUT.

An Excellent Butter-worker.

The farmer of "Ogden Farm" described in one of the "Ogden Farm Papers," (see *Agriculturist* for April, 1870, p. 131), a new butter-worker he had recently introduced into his dairy. There has been so much inquiry about

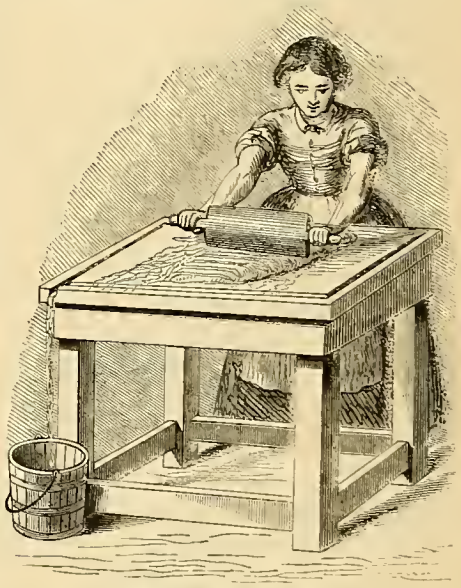


Fig. 1.—BUTTER-WORKER.

it we have had engravings made to represent it which scarcely need any other explanation than to give the dimensions. The table is of white oak three feet long, and two feet wide, made very substantially. The side away from the dairy-woman, as shown in figure 1, is the lowest, and a groove runs around three sides of the table to conduct the butter-milk to a drip at one corner. The paddle or knife is shown at figure 2. It is a foot long and five inches wide, with handles six inches long, made from one piece of oak board, worked smooth and true to a blunt edge on each side, as shown in the figure.

The butter is formed and worked by this

Fig. 2.—PADDLE.

knife, which is held in both hands. Any good butter-maker will quickly get the knack of using it, as it is much easier than working with the ladle or paddle commonly employed.

Tim Bunker on Good Neighborhood.

"I could a got along well enough with turkey shootin ef he had n't gone down to the store and brag'd on't;" said Seth Twiggs, rapping the ashes out of his third pipe, as he stood by my garden fence.

"You don't say that Jake Frink killed your turkeys, dew ye?" inquired Tucker.

Yes, he did, and brag'd on't, tew. Ye see I kept turkeys, and Jake also, and sometimes Jake's got into my garden and sometimes mine into Jake's field. Sometimes he'd bring in a bill for damaged corn, which I allers paid like a Christian man. Sometimes I drav his turkeys home and asked him to take care on 'em. But I never thought o' killin on 'em, more'n I wud one of Jake's sheep. And now the critter 's killed five of my young turkeys, and had n't the face to come and tell me on't like a man, but went down to the store and brag'd on't as ef he'd done suthin kind o' grand."

"He is as mean as dirt to destroy property in that way," said Tucker.

"I should n't a' thought so much of it," said Seth, puffing away at his pipe, "ef they had been in the habit of gettin into his corn. But I don't 'spose they'd been there more than once afore this whole summer. I had allers started 'em off into the big field in the morning, so as tu keep 'em on my own land."

"Better shoot some of his," said Tucker, "the next time they come up this way."

"No, I shan't," said Seth, "that would make tu fools instead of one, and one is pleuty enough in this neighborhood."

"Sue him then, I guess?" inquired Tucker.

"No, I shan't, while my pipe and tobacco lasts," said Seth. "The last cure fer any evil is a law-suit. It don't help good neighborhood."

"Well, what does?" asked Tucker.

"Doing about as you'd be done by," said Seth. "You see, Jake Frink and I have been neighbors ever sense we were boys, and are like to be till we go intu the grave. I paid his bill for corn damaged by turkeys last year, and it's fair that he should pay my bill for turkeys killed this year."

"And 'spose he don't do it?" inquired Uncle Jotham Sparrowgrass, who came up hobbling with his cane as we were talking.

"Don't do it!" exclaimed Seth, with a big puff of smoke. "I should like to know how he is gwine to git rid on't. It's plainer than a pike staff. If I pay him for damaged property, he ought to pay me, and he must see it. If he don't pay for them turkeys, why I've got Jake's conscience on my side, and he'll be hearing them turkeys gobble in his dreams, till he does the right thing."

"You'll cut his acquaintance, then, I guess?" said Uncle Jotham.

"No, I shan't," said Seth, "I shall be a little more attentive to Jake than ever, allers inquire after his health, and watch for opportunities to do him a kindness. I shall pile the coals of fire right on tu his head, and make him sweat. If his cattle git intu the mire I shall help 'em out. If his turkeys come over to my place, I shall drive 'em home carefully. If he wants my team in logging time, he can have it. If he's sick, I'll visit him and watch with him. I'll make him ashamed of his unneighborly conduct, and wish that every shot he put intu my turkeys was in his own skin. Ye see, if I get cross, and quarrelsome, I'll lose my hold on Jake's conscience, and make him think that I deserved to have my birds killed. If I am neighborly, I make him ashamed of his conduct, and every one of them turkeys haunt him till he does right."

"And 'spose he ha'n't got any conscience?" inquired Tucker doubtingly.

"All I have to say on that point is, that God don't make folks in that way."

So Seth Twiggs marched off in his cloud of smoke, just as confident that he could get the start of Jake Frink, as Jake was that he had the best of the bargain when he killed his neighbor's turkeys. Poultry makes a good deal of bother among near neighbors, and it is only upon large farms with a wide range, that turkeys ever ought to be kept. They wont do well in confinement, unless you have a twenty-acre lot, with trees and brush for them to run in. Nearly all the turkeys that are raised in Hookertown are raised upon farms, and the birds go where they like. They do some damage on the farms of their owners—trample the grass and oats a little, pick up some corn in the fall, and strip the turnip leaves. But on the whole they are so profitable and make so large an item in the income of the year, that few farmers like to do without them. They live very largely all through the summer on grasshoppers and other insects, reducing their numbers and helping the grass and grain crops in this way much more than they damage them. It is not an uncommon thing for a smart poultry woman to raise a hundred turkeys, worth at Thanksgiving three hundred dollars in clean cash. They are sold in a lump, and the money comes in a lump, with very little trouble. The best managed flocks come home every night, and always roost in one place on a scaffold, secure from foxes and other night marauders. But they will sometimes stray into a neighbor's fields, and eat some grain. This is provoking, but if a farmer knows that his turkeys wander in the same way and commit the same kind of depredations, it ought to make him careful of his neighbor's property. Where neighbors all keep these birds, the account is probably pretty equally balanced at the close of each year. Their wanderings will be very much restrained by liberal feeding at home. They travel for food mainly, and if it is found that they trespass, it is much more economical to draw upon your corn-bin to restrain them, than to draw upon your neighbor's cornfield and exhaust his patience. Seth Twiggs is as sound as a nut on good neighborhood; and as it is a credit to Hookertown, I am glad to say that he found that Jake Frink had a conscience and paid the bill. Moral—Don't presume upon your neighbor's rascality.

Hookertown, Conn., Oct. 15, 1870 } Yours to command, TIMOTHY BUNKER, Esq.

Management of Hogs in Illinois.

Mr. James Rice, of Peoria Co., Ill., favors us with the following account of the management of swine in that section: "The custom," he says, "is to have the pigs come about the first of May; turn the sows and pigs on good pasture and give the sows, beside the pasture, all the corn they will eat. There is then no trouble about the pigs growing. When weaning time comes, place the old sows in a separate pasture and feed them grain, if necessary. Take two barrels and fill them with shelled corn and turn the slop from the kitchen, and what sour milk you have, in one of the barrels, and it will soak the corn soft in a couple of days. Then soak the other barrel, and in this way the pigs will have just the right kind of food all the time. Cooking might be better, but it is expensive, and soaking answers the purpose very well. Feed the pigs enough of this to keep them in good thriving condition. In the fall, feed new corn as soon as it is hard enough. Feed them well through the first winter, and at ten months old they can be fattened so as easily to dress 300 lbs. But if preferred, place them in good pasture the second spring and summer, and then fatten the next winter, when, if of a good breed, there will be no trouble in making them weigh 500 lbs. Old sows make very good scavengers, but if you make scavengers of young pigs, the probability is that they will never make any thing else. Pigs can be bred in the fall, if desirable; but here, where the winters are severe, it is best to breed them in the spring. If there is one thing more important than another in raising hogs, it is first to secure a good breed and then take good care of them."

REMARKS.—Some of the Western agricultural editors seem to think that an Eastern farmer can know nothing about raising or fattening hogs; but the above described system of management differs very little from that practised on many farms at the East. The last sentiment is certainly good doctrine everywhere. We have farmers here that half starve their pigs, and we imagine that there are a *few* who do the same thing even in the fertile cheap corn districts of the West; we have some farmers here who "secure a good breed and then take good care of them," and we know that such is also the case at the West. It is our object, in all that we have written on this subject, to increase the number of such, whether living East, West, North, or South, and we can but think that we keep as many pigs and have as good opportunities of studying the best system of managing and fattening them as *some* of the editors of Western agricultural papers. And we may say that not a single Western *farmer* has found fault, to our knowledge, with our views on the rearing and management of swine.

Our correspondent advocates having only one litter a year. With the small breeds, which breed faster than the large breeds, we like to have two litters a year; one in March, and the other in September. Our spring pigs we treat as he does his,—give them all the soaked corn and cooked meal that they will eat with access to a good clover pasture; and sell them either for fresh pork, or keep them until December. We have some spring pigs now of a small breed that will dress over 300 lbs. each. The most essential point we find is to commence feeding the little pigs while suckling the sow, say at two weeks old. This helps the little ones and saves the strength of the mother, and in this way she is better able to stand two litters a year than one, when so kept that at weaning time she is reduced to a skeleton. The fall pigs it is particularly desirable to have come early, and they must have comfortable quarters and be well fed during the winter. The next spring and summer they have the run of a good clover pasture, and they ought to have (but do not always get it) corn enough to keep them growing as rapidly as possible—to keep them in fact *fat* all the time. By the first of November such pigs should dress 400 lbs.; and this is the cheapest and best pork we make. EDS.

"Speed the Plow."

On page 369 of the October *Agriculturist* I find the following: "Nothing should give a greater impetus to the plow than the fact announced and demonstrated, as we believe, by the Committee of the N. Y. State Ag'l Society, who made the awards upon plows at the great Auburn [should be Utica] and subsequent trials. This fact alluded to, is that a great increase of speed in the motion of a plow but slightly increases the power required to pull it. *Hence, powerful, quick-moving teams are a vast economy of force.*"—I italicize the conclusion drawn by the writer from the statements of the committee, as it is to the doctrine therein taught, that I propose to give a little consideration.

The Committee of the State Ag'l Society did in their report say that friction was "entirely independent of velocity," (*Transactions for* 1867, *page* 542,) and they did, on the same page, quote from Mr. Morton, with a strong show of approval, the remark that draught animals that *naturally* walk with a rapid pace "with the *same effort*, get through double the work of those of a more sluggish movement. *With the same effort*, and therefore at no greater expense

to the farmer." The committee go on to quote Mr. Pursey to sustain the doctrine that increased speed does not add to cost, "though they [the fast walking horses] are stepping briskly along at a pace which enables them to work five-quarters of an acre in a day, while the dragging walk of the other horses carries them through three-quarters of an acre only, in the same time. They feel the weight of the plow certainly not more than the others; perhaps even less."

Admitting as true what is said by the committee in regard to friction being "entirely independent of velocity," were they justified in drawing the conclusion at which they arrived?

One of the greatest men that ever lived, George Stephenson, the father of the locomotive steam-engine and of the railroad system, began his great works without any of the advantages of what we call *education;* and he was forced to prove by actual experiment, laws that scientific men were familiar with long before his time. So he, in 1818, made a series of careful experiments to determine the resistance that was encountered by carriages moving along railways—and he demonstrated that "friction was a constant quantity at all velocities."—Vince and Coulomb had before developed this theory, and it was well known to scientific men; but it had not been believed nor acted upon by practical engineers before Mr. Stephenson's experiments. (*See Lives of George and Robert Stephenson*, by Smiles, page 202).

The discovery of this law did not mislead Mr. Stephenson, and he probably never for a moment supposed that a train of cars could be moved as cheaply at the rate of thirty miles an hour, as it could at fifteen. He knew that the index of his dynamometer stood at the same figure in both rates of speed, but he also knew that his pistons traveled the length of the cylinders just twice as often in a given time, when the train moved at the rate of thirty miles per hour, as they did when it moved fifteen miles per hour; or to state the case in another way, he knew that he expended just the same power on each mile at both rates of speed. In each case the same pressure of steam on the pistons was required, and the cylinders had in one case to be filled with steam twice as often as in the other, and it took twice the number of pounds of coal to make the steam for a given length of time at the high rate of speed that it did at the low rate. So Stephenson knew that it cost just as much to run his train (friction alone being under consideration) a mile whatever the speed might be; and certainly he never fell into the error of supposing that he could run a mile at higher rate of speed at less cost than it could be run at the lower rate.

The steam-engine has a way of speaking for itself, that fast walking horses have not. The engine asks for fuel and water, and will have it supplied just at the time it is consumed. It neither draws upon a stock of fat before accumulated, nor does it lay in a new supply of strength by a subsequent rest; nor does the engine tire, as does the horse.

What is the power of a horse? By general consent it has been defined to be equivalent to the raising of 33,000 pounds *one foot high in one minute*. Why not say two feet high in one minute, if horses can plow with the same expenditure of power two acres that they can one?

Let no man fancy that a given quantity of land can be plowed without the expenditure of a positive quantity of power, and that being a fixed quantity, though perhaps an unknown one to the plowman, it must be expended, without regard to the time taken; or, if the time is extremely short or extremely long, it will be found that the animals that draw the plow would last best with the use of the longest time.

There are many other considerations besides the mere friction caused in plowing, that should be taken into consideration in determining the speed best to adopt in any given case. This I have purposely avoided discussing in the foregoing remarks. It will furnish abundant material for an article that I may some time attempt. GEO. GEDDES.

Remedy for Drouth.

The extreme drouth which has prevailed in many parts of the country, drying up the brooks, destroying the fish, and, in many places, making a total failure of corn and potatoes, leads us to inquire for a remedy. Is there any? Has man any power over nature? Can we add to, or diminish, the rain-fall? There are many facts in the history of the old world, which go to show, that man has much of this power, and that he may so direct his labors as to modify very essentially the climate, as well as the soil. Countries once fertile are now nearly barren, and sustain but a handful of people. Their brooks are dried up, and the rain-fall is greatly diminished. On the other hand, wells sunk in the desert make an oasis, and the spot of verdure increases with the passing years, until showers fall upon the parched sands. A remarkable instance of the effect of man's labors upon climate is now going on in the Great Salt Lake Valley, in our own country. When the Mormons first settled this region, they were entirely dependent upon irrigation for their crops. The supply of water was small, and they feared lest with the increase of their population, there might not be at last enough to irrigate all their lands, and famine must stare them in the face. But they have tilled their lands, planted trees, which are now large and completely embower their city, and their gardens are full of fruit trees and flowering shrubs. Many thousands of acres, once barren, have been made more productive than in rainy climates. Enormous sums have been spent in bringing water by artificial channels from the distant mountains to make these now fertile fields. The face of the earth has been changed, and there has been a corresponding change in the climate. They now have rains from the sky, almost enough to meet the wants of growing crops, a thing unheard of until within a few years. The effect of the increased rain-fall in the Valley has had a very marked effect upon the Great Salt Lake, which is 126 miles long by 45 miles wide. It has risen 12 feet since the Mormon occupation, and the water has a smaller proportion of salt. Formerly it took three gallons of water to make one of salt, now it requires four. The change has also affected the streams that flow through the Valley, and it is estimated that the same channels carry twice as much water as formerly, for the purposes of irrigation. These facts are very encouraging, not only to the Mormons, but to the settlers along the line of the Pacific Railroad, where there is little rain. It may be expected that irrigation, and cultivation, and the planting of trees will gradually work a change in the climate, and make rainless regions productive.—There can be no doubt that the removal of forests from a country has a tendency to diminish the rain-fall, and to make the showers less frequent as well as less abundant. If the clearing process is carried too far, we do not have rain enough to give us average crops. The most desirable proportion of forest to cleared fields is reckoned in France at one of the former to four of the latter, and the government of that country regulates forest culture for the general good. In this country there is no regulation, and every man follows his own sweet will in destroying trees. We think the time is not far distant, when our government will have to look after this matter, and place some restriction upon the removal of forests, and encourage the planting of trees upon the prairies, and in the rainless regions. Wood and timber are growing very scarce and high, in some of the older parts of the country; and streams once full of water are now nearly dry for the larger part of the year. We very much want information disseminated upon this subject. The instinct of self-preservation, if it were enlightened, would lead farmers to preserve their forests upon the mountains and hills, in which our streams take their rise, and not to drain too many of the swamps in these high lands. The springs at the source of every brook should be sacredly guarded. These high lands are generally rocky, rough, and steep, and quite impracticable for the plow. They are favorable to the growth of wood, and should be left as sources for the supply of fuel, timber, and rain, for the benefit of the whole country.

HAND THRASHING MACHINES.—We were not a little interested at seeing three hand thrashing machines at the N. England Fair, and we believe there are others which were not there exhibited. The earliest attempts to thrash by machinery were, we believe, with hand thrashers. The curious will find a reference in Washington's Diary under the date of January 22d, 1790, to his having called upon the Baron de Pœllnitz to see his thrashing machine, by which it is clear that long before the introduction of horse thrashers, a tolerably effective hand machine was employed. The new hand thrashers are cheap machines, work easily, and quite expeditiously, and do their work well, we believe. They were looked upon with great favor by the small farmers; and at this time when skilled farm labor is so hard to find, we think they are just in time to supply a great want.

Fattening Sheep in Winter.

"A Young Farmer" in Canada writes: "I see that 'Walks and Talks' thinks it profitable to fatten sheep in winter. I tried it the past winter on a small scale, and have not found it so, and should be glad to know what is the trouble. I put up four of my worst lambs with some old ewes. They had all the clover hay they would eat, good water every day, a few peas in the morning and some oats at night, besides roots. They were kept in a good, warm, dry frame house, but had no yard to run out in. The old ewes did very well, but of the lambs one is dead, another is likely to die; the third is as poor as when shut up, and the other one is well improved. They have no disease, but gradually got poorer and weaker. Do you think sheep feel better in good-sized flocks, and is an open shed that is dry better than a closed house?"

It is not well to put lambs and old sheep together in the same flock. The old sheep probably got most of the grain. The fact that the ewes did well, indicates that the trouble was not in the house or in the feeding. But it should be remembered that young, growing sheep re-

quire more food to fatten them, or to keep them in good condition, than sheep that have attained their growth, and are in good health.

In fattening sheep in winter in our severe climate, our profits are derived principally from the extra price that fat sheep usually bring in the spring, and not from the mere increase in the weight of the sheep. For instance, last December, sheep that could be bought for 4 cts. per lb. were worth 8 cts. per lb. in April, if moderately fat, and 9 cts. if extra fat. A sheep that gains 20 lbs. during the five winter months may be considered as doing well. But this would not pay for the food consumed if we had to depend merely on the increase in weight of the sheep. We should, at 8 cts. per lb. get only $1.60 for five months' feeding. But if we buy a hundred pound sheep for 4 cts. per lb. and it gains 20 lbs., and then sells for 8 cts. per lb., it would bring $9.60 and we get $5.60 for feeding, etc. This will pay as well in our opinion as any ordinary branch of farming ought to pay.

The real point in fattening sheep in winter is to have the sheep nearly fat before winter sets in. It will not do to attempt to fatten the "worst lambs." If we attempt to fatten lambs at all, they must be of the very best quality, and should have extra food during the summer and autumn. We would advise our young friend to adopt the following course: Select good, common, long-wooled ewes. Then get a *thoroughbred* Cotswold ram. We should prefer one that manifests a tendency to early maturity, rather than to extra size. Have the lambs come in April or the first of May. While in lamb, keep the ewes in good, healthy condition; not too fat and certainly not too thin. After they have lambed, feed liberally, so that the ewes will have abundance of milk. This is a very important point. If the grass is not ready, give good clover hay and bran with roots and a little grain. We find bran excellent food for suckling ewes, either with or without roots. When turned out to grass, we would continue to supply them with what clover hay and bran they would eat, also a little grain, say, from half a pint to a pint per day for each sheep. This will give the lambs a good start, which is half the race. Let them have good pasture during the summer and fall. If the pasture is not first-class, feed a little oil-cake or bran and grain.

Feed well, during the winter, on good barley and wheat straw, with a pound of oil-cake, each, per day, and towards spring feed clover hay; or, if preferred, feed clover hay during the whole winter instead of straw and oil-cake. The next summer feed liberally, and by the first of November the sheep will be in prime order. Then shut them up and feed clover hay and oil-cake for about six weeks, and send the sheep to the market for Christmas mutton. By this time the sheep should average 200 pounds each, and would command a high price. The point we wish to make is, that in our severe climate, we should aim to fatten our sheep during the summer. In the hands of experienced feeders, sheep can be fattened during the winter; and those who can purchase the right kind of sheep in the fall at ordinary rates, often make a good deal of money by fattening them for market. But it is getting more and more difficult every year to find the right kind of sheep. And it certainly will not pay to attempt to fatten sheep that are in poor condition when winter sets in. All that we should attempt to do in winter is to finish off the sheep, make them ripe for the butcher, and find a good market.

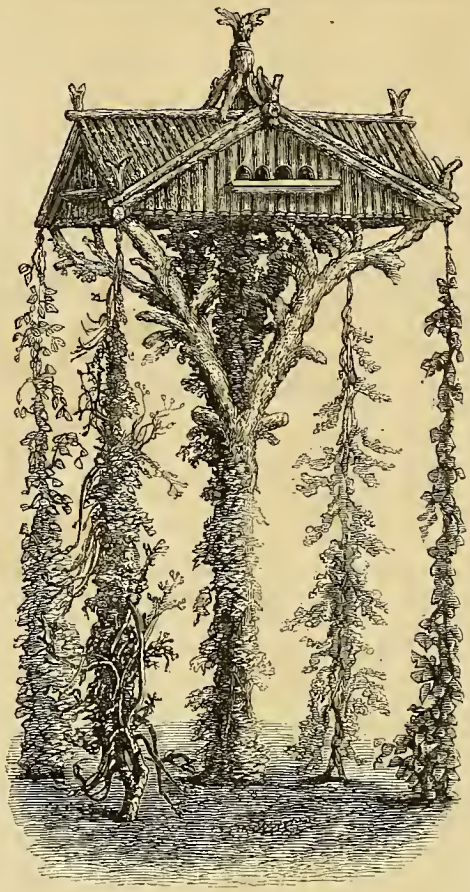


Fig. 1.—BIRD-HOUSE.

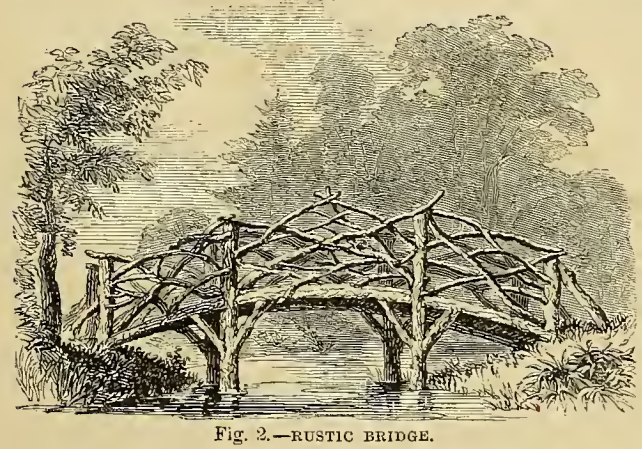


Fig. 2.—RUSTIC BRIDGE.

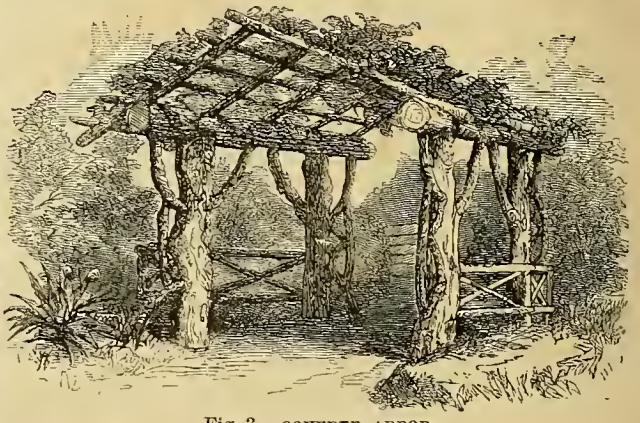


Fig. 3.—COVERED ARBOR.

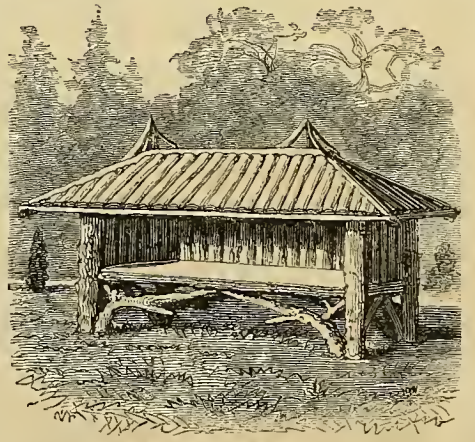


Fig. 4.—RUSTIC BEE-STAND.

Structures in Rustic Work.

The term "rustic work" is now used for many objects made of materials, the surface or the shape of which is left in the natural condition. The smallest flower-baskets, consisting of a bowl ornamented with cones and crooked sticks, and large, even elegant, edifices, such as are seen upon our parks, are classed under the rather comprehensive name of rustic work.

Probably no finer specimens of this style of architecture can be found anywhere than at New York Central Park; the shelters, summer houses, seats, arbors, boat-landings, and bridges, built in this manner, are numerous, and are tasteful in design and executed in a workmanlike manner. It is probable that the successful introduction of rustic work at the Park has done much towards popularizing it, for we now seldom visit a neighborhood where any attention is given to rural adornment that we do not see more or less ambitious attempts at this kind of decoration and frequently excellent examples.

Work of this kind should present the expression of durability and solidity. Its very rudeness of exterior demands that there should be nothing shaky about the structure. There is no wood so well suited to the purpose as the Red Cedar, not only on account of its great durability, but because the natural growth of its branches presents a great diversity of angles and curves, twists and knots, that in the hands of a skillful workman give most pleasing effects; besides these, its color is a harmonious one. No instruction can make one a clever builder of rustic work, he must have a natural ingenuity that will allow him to combine irregular shapes into something like symmetrical forms. A mere association of grotesque branches is not pleasing. There must be an architectural design, and the details of this worked out by the ingenious use of natural materials. We give a few illustrations of simple structures. In fig. 1, we have a bird-house and a support for climbers combined. The central pillar is made sufficiently strong to support the structure, and the vines are trained to the corners by means of wires. Fig. 2 is a bridge upon the estate of Edwin A. Saxton, Esq., at Tenafly, N. J. Rustic work is often used with fine effect in small bridges, and though this is less regular in its design than some we have seen, the effect is very pleasing. The covered arbor, fig. 3, is an exceedingly simple design. It is over one of the path-ways at Central Park. Fig. 4 is a bee-stand at Central Park. The roof, and enclosed sides, and ends are covered with split sticks of Red Cedar.

The Closed Gentian.

Among the many plants sent us for a name, there is no one we more commonly receive in autumn than the Closed Gentian. It is frequently met with late in the season, and attracts notice on account of its conspicuous, dark-blue flowers, and their persistent way of never opening. The engraving we give will show this peculiar appearance, which has caused some to call it the Bottle-Gentian. The most common species with this general aspect is *Gentiana Andrewsii*, and it sometimes occurs with perfectly white flowers. There are two or three other species similar in appearance, found in the Southern and Western States, and only to be distinguished upon close inspection. We are not aware of any attempts to cultivate either this or any other of our species of Gentian. Some of the Alpine forms of Europe have been introduced into cultivation, but they are difficult to grow with us. Probably our native ones, some of them very beautiful, if their requirements were properly studied and experimented upon, might be brought into cultivation.

THE CLOSED GENTIAN.

A Double-flowered Datura.

When one wishes to popularize a flower that is little known, how he is troubled to find a taking name. *Datura chlorantha flore pleno*, as they have it in the seedsmen's catalogues, is certainly formidable enough to repel any one; it might be called "Double-flowered Datura," but as there are other Daturas that have double flowers, this seems to be hardly specific enough. The Daturas we are sufficiently familiar with in our common *Datura Stramonium*, popularly known as Stink-weed, Apple of Peru, Devil's Apple, Jamestown and Jimson Weed, which is a common enough weed in all waste places. Even this is not without beauty, and did it require care to develop its fragrant funnel-shaped white flowers, we should probably prize it as an ornamental plant, despite the sickening odor of its leaves. There are several species of Datura cultivated for ornament; while their flowers are very showy, their leaves have all a most unpleasant odor. One should enjoy them without coming into too close contact. *Datura meteloides*, oftener incorrectly called *D. Wrightii*, is a very showy, single-flowered species, and a well grown plant of it makes a great display of enormous flowers. A friend of ours who makes the greatest possible show in a small garden, produced a fine effect last summer with a few plants of *Datura chlorantha flore pleno*—which we may translate as the "Double greenish-flowered Stink-weed." It grows four or five feet high, and makes a spreading, bushy plant, which is covered with a profusion of bloom. The individual flowers are six or eight inches long, and each curiously double. Each corolla has another within it, to the number of three or four, as shown in the engraving. The flowers are of a delicate, greenish-yellow color, and are fragrant, while the foliage, when bruised, is as offensive as that of our common species. For making a show, this is a desirable plant, and as it is one of those things which flourish well in hot weather, the best way is to start the seeds early in a hot-bed and grow the plants as rapidly as possible.

DOUBLE-FLOWERED DATURA.

Soils for Gardening and Farming.

BY PETER HENDERSON.

On many occasions I have referred to the great importance of selecting a proper quality of soil for all gardening and farming operations. But as year by year you are increasing the number of inexperienced readers, the fact cannot be too often nor too forcibly impressed that success hinges upon this alone more than on any thing else. Thousands are every year ruined by a bad selection of soil. I have scores come to me in the course of every season for advice in this matter of soils, but in most instances the advice is asked too late; the majority of the applicants having been unfortunate enough to buy or rent land that they had been led to believe was excellent, but only "run down." In my opinion this wide-spread notion of "exhausted lands" is, to a great extent, a fallacy, and that most of the lands said to be so exhausted never were good, and no power on earth short of spreading a good soil over them a foot thick, would ever make them good. In a visit to the suburbs of Richmond, Virginia, a few weeks ago, I encountered a man from the Eastern States that had gone down there four years ago. He had bought an "exhausted farm" of 80 acres, and with northern energy and northern capital, hoped to resuscitate it to what it had been (as the former owner had told him), a fertile farm. An expenditure of nearly $3,000, and the hard work of four years, had as yet failed to give him a crop of corn that paid for the labor. Not a stalk could I see that had been more than five feet high, and many of them not two feet. No wonder! his poor yellow soil in no place exceeded four inches in depth, and was underlain by a hard pan of clay. Ruin in all such cases is inevitable, the labor put upon such a soil can never pay, so long as there is any thing better within twenty miles of it. Our country contains millions of acres of lands, that are bought and sold annually, which are of but little more use for farming purposes than if the title deeds were given for the same area in mid-ocean.

"But," asks the reader, "how are we to select soils?" First, never buy a farm without personal examination—never take the seller's word about it; he may honestly believe that what he asserts is true, or he may know it to be false; but in

either case if you are deceived you suffer. Let the examination be thorough; note the surroundings, if the district is settled and cropped; carefully examine the condition of crops on the farm and upon those adjoining it. If they are sickly looking and weak, if the corn-stalks instead of being seven or eight feet in hight are but two or three, you had better lose your time and expenses and get home again, than take the farm as a gift. But should there be no corn or other crops by which to test the quality of soil, an examination should be made by digging down at short distances all over the ground. The top, or "true soil," should not be less than nine inches in depth; the best color is a dark brown. The subsoil, or stratum lying immediately under the top soil, should be of a porous nature, and it is usually, in first-rate soils, of a yellowish, sandy loam. Occasionally we find a gravelly subsoil underlying soils of good quality, but this is not so common. Less frequent still is a subsoil of blue or yellow clay, such a clay as might be used for brick making. A subsoil of this kind when near the surface is a certain indication of a poor quality of soil for the purposes of either farming or gardening.

To illustrate the value of different soils for our market gardening purposes—we have in our immediate neighborhood men, who now pay $100 per acre annual rent, and who in the past ten or twelve years have made snug little fortunes upon eight or nine acres in cultivation. At a distance of not more than half a mile, there are others paying less than half that amount in rent, who have during the same time been struggling to make both ends meet. Though equally industrious and having an equally good knowledge of the business, their success has been quite different, and all simply for the reason of a difference in the normal condition of the soil. In the one case the land would be cheaper for the occupant at $200 per acre annual rent than the other would be if it could be had for nothing.

Our best lands for vegetable growing in this district (Jersey City, N. J.,) which is a mere suburb of New York City, are rapidly getting absorbed for building purposes, so that before many years the market gardens, for the supply of the great Metropolis, must be on Long Island. There the land is generally well fitted for the purpose. Immense tracts of level prairie-like lands are being devoted to ordinary farm crops in the vicinity of Flatbush and Flatlands, L. I., which in a few years will, without doubt, be occupied by garden vegetables and fruits.

Hybrid Grapes.

Those who have maintained that there has been no true hybrid produced between the foreign *Vitis vinifera* and our several native species, will be obliged to abandon their position. Leaving the Rogers' Hybrids out of the question, there are now several which have been produced since in which the characters of the native and foreign are so positively manifested, that the most sceptical can no longer doubt that true hybridization has taken place. The varieties sent out by Mr. Chas. Arnold, of Canada, show a distinct trace of foreign blood. The Senasqua of Mr. Underhill is a cross between Black Prince and Concord, and shows the foreign character in the fruit and the native in the leaf. Later, still, we have some fine hybrids by Mr. J. H. Ricketts, of Newburgh, N. Y., in which the peculiar flavor of the Muscat Hamburg is imparted to a fruit possessing in most respects the characters of the natives. One of Mr. Ricketts' hybrids, which took the first prize at Bliss & Sons' grape exhibition, in September last, is a triumph of careful cultivation, and we hope to hear of its success elsewhere. It is to bear the honored name of Charles Downing.

Notes from the Pines.

ONE PINE THE LESS.—"There was a bliff-blang; the house shuk as if the roof was rolling off uv it. Katy was kilt entirely with the fright, the very dogs jumped in at the parlor windoys and hid under the sofy, and sur there was a smell as if iverything was burning up jist."—Such was the account Peter gave of a terrific thunder storm as we drove home from the station one day last August. My fears were too well founded. One of the noblest of the pines showed in its ruptured bark that it had been struck by lightning. It remained unchanged, and stood there so green and sturdy that I tried to forget what had happened, and even to hope that it might survive. Looking out this November morning, I see that the last hard frost has told the story. All the other pines are bright and green, but this droops the tips of its branches and pales to a sickly yellow. It seems hard that the patient growth of a century should be demolished in one sudden crash. There is nothing to do but accept it with resignation, and think that the tree died nobly in diverting the bolt from something more precious. The removal of the tree will open a bit of landscape now shut out, and perhaps there are other blessings if one could only see them. Nevertheless, I mean to be away when it is cut down.

THE FRENCH MULBERRY is the name given in the Southern States to a shrub known in our nurserymen's catalogues as *Callicarpa Americana*. It is not a Mulberry at all, but belongs to the Verbena Family. Its clusters of fruit are very numerous and of a fine violet-purple color, and is really a pleasing object in autumn. This and the Snowberry, which stands near by, make a fine contrast; and now that the flowers are all gone, it is pleasant to have some bits of color for the eye to rest upon.

RHODODENDRONS.—A good Rhododendron can be bought for two dollars, and I do not see how so much satisfaction can be had for the same amount of money expended in any other plant. Perhaps so much has been said about Rhododendron soil and the necessity for peat, that many think they will not grow without elaborate preparation. This is a mistake; they will flourish in any soil that does not contain an excess of lime. The spot where ours stand is so sandy, that but few would think of planting any garden crop in it without an abundance of manure. There was an old sod upon the ground and this was spaded under; no peat, muck, nor leaf-mould was added, and the Rhododendrons, Azaleas, and even the water-loving Rhodora have made a fine growth, and are stocked with abundant buds full of promise for next spring.

AKEBIA QUINATA.—There is no vine that has given me more satisfaction than this. It is a good grower, its stems are slender and manageable, and I have found it a capital subject for a low screen to the veranda. After the frost has despoiled the other vines growing near it, the very neat and dark green foliage of this looks as bright and fresh, as if winter had not come.

The Madder Plant.

Among those plants of considerable commercial importance, the cultivation of which in this country would retain here large sums of money annually paid to foreign producers, Madder possesses great interest. The root is extensively used in dying, and yields a deep-red coloring matter. The plant is native to Southern Europe and the Levant, bears the winters

MADDER PLANT.

of Holland, Central France, and parts of Germany, well, and has been successfully cultivated in various parts of the United States. The sprig which is represented in the accompanying engraving, gives a good idea of its habit of growth. It resembles some of our common Galiums or Bedstraws, very much, both in stems, leaves, and bloom, and belongs to the same natural family. The root is the portion of value; and the object of the cultivator who raises Madder is to produce as much root as possible. There is a great difference in the quality of the product of different soils, as well as in the amount of the crop. The soils upon which the deepest colored roots are obtained are rich, light, and deep, of a calcareous and alluvial character, deeply worked, free from weeds and in fine tilth. The crop as cultivated in France and Holland, requires a great deal of hand labor at first; but it occupies the land some two or three years, and often more, and gives little trouble after it is laid by. Harvesting the roots again requires a good deal of hand labor, but as a ton or a ton and a half of the dried roots is a common product to the acre, it is very remunerative.

Madder is either raised from seed, which is sowed in the spring in beds five or six feet wide, where the plants are to grow, or cuttings of the roots are preserved from the previous year's harvest, and these are planted out early in the spring, ten inches assunder, in rows about twenty inches apart. Where the latter system is followed, four rows form a bed, and a space equal to the omission of one row is left between the beds. As the plants grow, branches are bent down and covered with earth to induce them to strike root again, and this operation is continued as long as any unoccupied ground remains. Meanwhile the soil is kept open, mellow, and free from weeds at first, by a common plow, or one-horse subsoil plow, and subse-

quently by hand-hoeing and hand-weeding. The tops of the plants being repeatedly laid down and covered with earth in the way described, necessitates taking a good deal of soil from the alleys between the beds. These become considerably deepened, and the beds proportionately raised. Care must be taken that the beds are kept flat or a little depressed in the center, in order that the rains shall not wash down the sides, and that the water shall all soak in and keep the soil moist.

In Holland the custom prevails of digging after the second season. Here the plants are raised from root cuttings, and this probably gives them a little advantage over a seedling crop of the same age. The reason for digging at this time is said to be the risk attending wintering. Where the winters are milder the crop is seldom harvested before the third autumn. Madder is dug in August or September, while the weather still remains hot enough to dry the roots and render kiln-drying unnecessary, except as a final preparation for grinding. The usual practice is to remove the surface of the bed, tops and all, with sharp hoes and shovels, cutting about half an inch below the top of the ground. Then a large plow with a sharp coulter is run, beginning at the edge of the bed, as deep as possible, turning a furrow outward into the path. This furrow is then thoroughly overhauled with forks and rakes, and all the roots carefully picked out; then another furrow is plowed and picked over in the same way. The roots are at once taken to a stream, pump, or hydrant, and washed by hand, being pulled apart and all the dirt and grit thoroughly removed. When perfectly clean they are laid upon light platforms or tables, like apples, for drying, and placed in the sun. At nightfall, or when rain threatens, these tables are stacked up under a temporary cover, or the protection of some building. When sufficiently dry they are beaten or thrashed so as to deprive them of the fine rootlets which are subsequently winnowed out. In this condition it is probable the crop might be profitably marketed in the country. It is, however, usually kiln-dried, ground in a common grain-mill, and the powder packed in barrels or kegs. The dried and broken roots are known in commerce as "lizari;" when the outer bark has been removed by thrashing and winnowing, they are said to be stripped, and are of a beautiful translucent red color. The powdered root alone is known in the trade as Madder. It has a marked bitter taste, and a strong, peculiar odor. When packed in barrels it soon undergoes a fermentation, which causes the mass to become very tough and compact, but improves its coloring properties. Madder is the most important of the red dye-stuffs, and is especially valuable for coloring cotton and for calico-printing, on account of the many beautiful colors it gives when used with different mordants. The Madder imported amounts to several millions of dollars' worth annually.

New Fruits.—Of the many new apples and pears that have been sent us this year, many have been decidedly poor, while a few gave promise of being worthy of cultivation; but there were none among them superior to varieties we already have. The prevalent practice of naming and figuring every new fruit that comes up is crowding our horticultural literature with a mass of rubbish that is an embarrassment rather than a benefit. The list, especially of apples and pears, is now so large that not another one should be added to it without careful consideration and consultation with pomologists of large experience and sound judgement.

Rabbits and Mice in Young Orchards.

It is very disheartening to discover, during or at the close of the winter, scores of thrifty young apple and pear trees girdled by vermin. Precautions might be taken which would prevent it, did the owner suppose there was any real danger; yet it usually happens that after years of exemption from harm, mice or rabbits appear—or, not appearing, do untold damage unseen. There have been many suggestions made, and plans devised to protect trees. Blood sprinkled or painted upon the stems near the ground, will keep off rabbits. This is easy to obtain about Christmas time, and if there is a plenty of it, it may be used freely, for no more valuable manure could be applied. We should fear, however, lest that which is so disagreeable to rabbits would only toll the mice, for which it would be choice viands.

The attacks of rabbits are made above the surface of the snow, while mice usually operate beneath and close to the ground. They often eat the bark of the roots, which are partially covered by grass and soil. This, however, is not very damaging to the tree. We have found the best protection we could apply was roofing paper, or "felt," which is used as a surface for the so-called "gravel" roofs. Tarred sheathing paper used for the side-walls of houses, though lighter, would answer an equally good purpose. The stems of the trees are surrounded by pieces of this tarred paper, passed around so as to fit snugly and fastened with carpet tacks. The best way is to gash the lower edge of the paper a few times, and digging out the soil close to the stem, put the paper down below the surface, and cover it a little. This will effectually prevent mice getting to the trees, and is very quickly done. It will prevent harm from rabbits also, provided the snow does not fall too deep.

"Ridging-up" the Kitchen Garden.

In large gardens the plow is almost necessarily employed as the chief implement of tillage—but the spading fork does so much better work that it should be used wherever possible, with a due regard to cost. In private gardens it should always be employed. The benefit the frost may work in heavy land is almost always underestimated, if we may judge by the general neglect of ridging. We see very little of it nowadays compared to what would be advantageous. This is tolerably well done with the plow, by turning two furrows, one from each side, upon an unplowed strip lying between them, of about the width of one furrow. The operation is, however, much better done with the fork, and a good spader will work so rapidly as to astonish one unfamiliar with the work. Manure may be spread and forked into the ridges as the work goes on, and it may be followed day after day until the ground freezes solid. In trench ridging, the manure being spread, the spader first thrusts in his spading fork as deep as he can, where the center of the ridge is to come, and inverts the ground, then he throws two "spits" from one side, then two from the other upon it. He takes care not to knock the lumps to pieces, but to leave the ground as lumpy as possible.

The frost will do the pulverizing, and besides, the more the soil is exposed to its action the better. He passes from one ridge to the next, working in the same way, and thus all the ridges are carried along even and parallel. The direction they should run is very important. If the land is ridged east and west, the north side will remain frozen hard most of the winter, while the south side will be frozen and thawed almost every clear day. If, however, they go north and south, each side will be equally exposed to the action of the sun and frost, and the greatest good gained. Some times the slope of the land is such that if the ridges ran up and down the hill, heavy rains would cause the land to wash badly. This may be guarded against by making cross-ridges at intervals of 20 or 30 feet, and packing them solid on the lower side. If the rainfall meets with any check in a good soil, it usually disappears very soon, except when the surface is deeply frozen.

Beautifying the Nooks and Corners.

A little book has recently appeared in England which has given us much pleasure. The book is called the "Wild Garden," and its author is Mr. W. Robinson. The object of the author is to show the English people what a large number of garden plants, usually supposed to require careful cultivation, will, if planted out and neglected, take care of themselves, and go on and flourish from year to year—in short, become perfectly naturalized. He proposes that plants of this hardy nature should be planted in such nooks and corners as almost every large place presents, and thus form what he calls his "wild garden," where instead of weeds the space shall be filled with pleasing flowers, growing in a natural way. The idea is a happy one, and quite as practicable with us as in England. There is scarcely a farmer's wife who does not long for a garden, while but few of them are able to command the means and time to keep one in proper order. A neglected garden is a source of pain rather than pleasure, but if she could have a wild garden, where one of its merits was its freedom from care, it would allow many a one to enjoy flowers who might otherwise be deprived of this pleasure. Upon almost every place there is a spot exactly adapted to a wild garden. If it is so rocky that it has been left untouched, all the better. Hardy bulbs, such as snowdrops, tulips, crocuses, hyacinths, daffodils, and others, do quite well year after year. Almost any of the well known border plants that are to be found in old gardens are suited to the wild garden; the Columbines, Larkspurs, Moss Pink, Primrose, Pæonies, Perennial Phloxes, and a host of others. Some of our more attractive native plants would of course find a place here, and the late-flowering Chrysanthemums also. We can readily see that a wild garden can be made to the real lover of flowers, a source of daily pleasure, from the time the first crocus pushes in early spring until frost has destroyed the last chrysanthemum.

Breese's Peerless Potato.—Wherever potatoes did well at all, the Peerless has generally given great satisfaction as to yield and quality. In our own case they were planted too late, and were in common with other late varieties ruined by the drouth. It is a large, white, smooth variety, of very handsome shape. Its principal fault is that it is disposed to run too large. Mr. Quinn reports the crop of a friend to whom he gave a potato weighing one-half pound. It was cut into fifteen pieces of one eye each, and planted in a row 20 feet long. The yield was over a bushel and a half, and weighed 102 pounds.

The Green Corn Pest.

In October we mentioned the ravages of the Cabbage Pest, which had brought such losses to our cabbage growers. Since then our market gardeners have had great trouble with their late sweet corn. Almost every ear has been infested by a "worm," which means a caterpillar. Upon stripping the husks from the ear it is found that this "worm" has eaten one or more rows of kernels, and made itself quite at home. Some ears brought us by Mr. P. T. Quinn, show a perforation of the husks, but whether the insect entered that way or only provided for ventilation, we cannot say. Where we have observed this insect in our own corn, it appears to have entered through the silk and eaten its way down. In our correspondence with Mr. C. V. Riley, the State Entomologist of Missouri, he informs us that the insect which troubles our corn is the same that makes such havoc in the cotton-fields of the Southern States, and is there known as the Boll-worm. It seems to be not very particular as to its food, as it will eat newly forming cotton seed as readily as it will young corn, and it attacks with equal voracity young tomatoes (fig. 1), and young pumpkins! The caterpillar (*a*, fig. 2), is variable in color, but is generally of a pale green, marked with brown and black, the body being marked with longitudinal light and dark lines, and covered with black spots, which give rise to soft hairs. When the caterpillar has attained its growth it descends into the earth and there forms an oval, silky cocoon. In three weeks it emerges as a

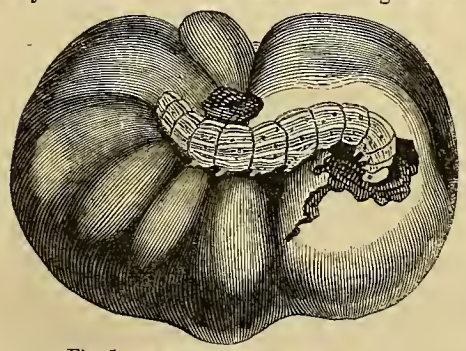


Fig. 1.—BOLL-WORM ON A TOMATO.

perfect insect, shown in *b*, fig. 2 with its wings spread, and at *c*, with them closed. The general color of the moth is a clayey yellow, with a greenish tinge, with olive and brownish markings. The figures we have given are copied from the American Entomologist for 1869, a periodical which we regret to learn is to be suspended with the present year. From the habits of this insect we can see that the only preventive is to be found in the destruction of the moth before the eggs are laid. Light attracts most night-flying insects, and a lantern placed in a pan of water will cause a great number to destroy themselves. Plates containing vinegar and molasses have been suggested as useful traps. The whole warfare against insects depends upon knowing their habits. Nothing will destroy this Boll-worm after it once gets inside the ear of corn. We must prevent it from entering, and the only way is to destroy the parent insect which lays the egg. If lights, against which it can beat itself to its own destruction, or sweets that will entrap it will do it, let us use them. This corn-silk worm and the cabbage pest will do much towards opening the eyes of our market gardeners; and perhaps they will insist that the legislatures of the various States, which expend money for many objects so freely, shall devote a moderate sum to employing competent persons to instruct the people as to the best methods of fighting and destroying their most formidable enemies.

FIRE-CRACKER PLANT.—(*Cuphea platycentra.*)

The Fire-cracker Plant.

(*Cuphea platycentra.*)

We are often asked to name a plant that will bloom freely during the winter in ordinary window culture. We do not know of a better plant for all purposes than *Cuphea platycentra*. It is a most accommodating thing, as it is annual, or perennial, as one choses to have it. Started from the seed it will bloom the first year, and it may then be kept as a house plant, and thereafter be propagated by cuttings. As it is one of the things generally kept by florists, it is usually better to get plants than to raise them from seeds. It is a capital plant anywhere, whether set out in the border, used as a center-piece to a hanging or other basket, or as a single specimen grown in a pot. The plant has a remarkably bushy habit of growth. It throws off branches in great numbers, and these, being well clothed with leaves, make a dense tuft. Then at the axils of the leaves append two slender, tubular flowers, bright crimson, with a dark violet—almost black—border, edged with white, which makes them, though not very showy, at least interesting. The plant is always in bloom: if we keep it indoors it blooms all winter, and if we turn it out into the border, it flowers all summer long. It is of the easiest propagation. Some plants outside had become too large to make good pot plants, so we cut off a lot of branches and stuck them into a pot of wet sand. In two weeks they were rooted and growing, and begging to be removed to good soil. We do not know of a plant that is more easily propagated or that is on the whole more satisfactory. To be sure it is not showy, but it gives a mass of delicate, deep-green leaves, grows freely, and blooms abundantly, and the flowers, though small, are unique and beautiful. The long tubular form and scarlet color of the flower have led to the popular name of Fire-cracker Plant. The generic name *Cuphea*, refers to its curved pod, and the specific one, *platycentra*, means broad-spurred. The plant is a native of Mexico, is hardy on the Continent of Europe, and would doubtless prove so in the United States south of Maryland.

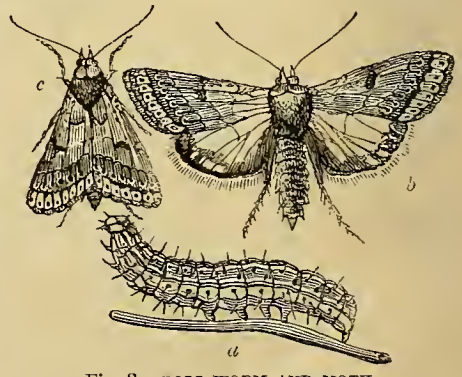


Fig. 2.—BOLL-WORM AND MOTH.

THE HOUSEHOLD.

☞ *(For other Household Items, see "Basket" pages.)*

Christmas Presents.

BY MRS. A. B. MCK.

Christmas presents for four persons and only five dollars with which to buy them. O, dear! Could any one tell me how to purchase a foot rest for father, paper holder for James, lamp shade for Aunt Ann's poor eyes, and a bracket to hold the pretty statuette that cousin Mary gave Millie on our last visit to town, with only five dollars? Each of these articles had been by me priced and repriced, in the vain hope that five dollars could be stretched to cover a surface requiring fifteen; until at last I came to the conclusion that I must *make* them *myself*, if they were to be forthcoming at all. After that, for a whole week, whether sweeping, dusting, churning, or baking, the pros and cons of these coveted possessions, and the most plausible way of setting about their construction, constantly floated through this very feminine brain of mine; when, about the seventh day, a happy idea dawned, all became clear, and order was evolved from chaos.

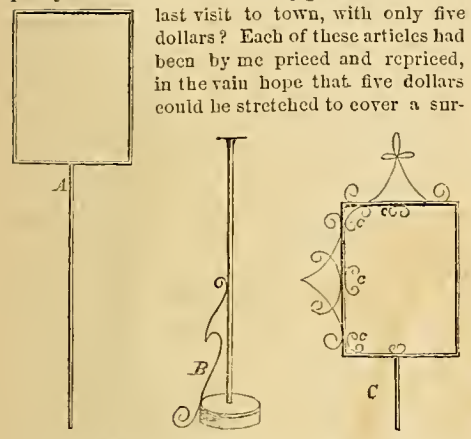


Fig. 1.—PARTS OF LAMP SHADE.

The first article attempted was Aunt Ann's lamp shade. Now the common round ones when used, left the whole family, as well as herself, in the dark. I wanted something to shield her eyes, and yet allow the rest of the room to be flooded with light

Fig. 2.—LAMP SHADE.

For this purpose I had looked longingly upon a porcelain standard shade, displayed very temptingly in a certain shop window, but alas! it cost far more than the whole contents of my purse. However, I concluded to get some good out of my disappointment by using it as a model. Having procured a heavy wire frame from the tinman (*A*, figure 1), I moistened a little plaster of Paris, filled an old, tin blacking box with the creamy substance, and placed the lower end of the standard in the center, where I held it firmly with my left hand until the mixture hardened; meanwhile with my right hand I expeditiously arranged a row of coffee berries around the edge of the box, which, as well as the standard, were soon securely held in place by the hardened plaster. I next took four pieces of wire, which I bent and fastened to the standard and box as at *B* (figure 1). This I accomplished by means of very fine wire and small bits of putty. The edge of the upper part, or screen, I also ornamented with fancifully coiled wire, making the figures *c*, *c*, *c*, (at *C*, fig. 1,) double. Upon the edge of a round board, two inches larger in diameter than the blacking box, I puttied a row of coffee berries; fastened wire feet to the bottom, and glued this second and broader base to the first one, already at the bottom of the standard. (Had I screwed the box and wood together before using the plaster of Paris, it would have been much better.) Then I gave to the whole three coats of dark brown paint, and as many of varnish, letting each one dry *thoroughly* before applying the other. The last coat of varnish was mixed with a quantity of hair powder called "gold dust," before being applied, which gave to the frame the appearance of having been made from the golden sealing-wax, so much in vogue years ago. Having cut a transparency from bristol-board, I gave to each side a coat of white glue; afterward, two of varnish, and inserted it between the double wires at fig. 1 (*C*). When complete, it presented the appearance of fig. 2, and was pronounced by all, beautiful.

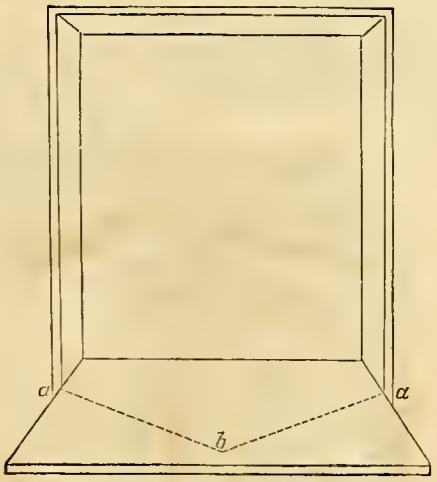


Fig. 3.—DIAGRAM OF FOOT REST.

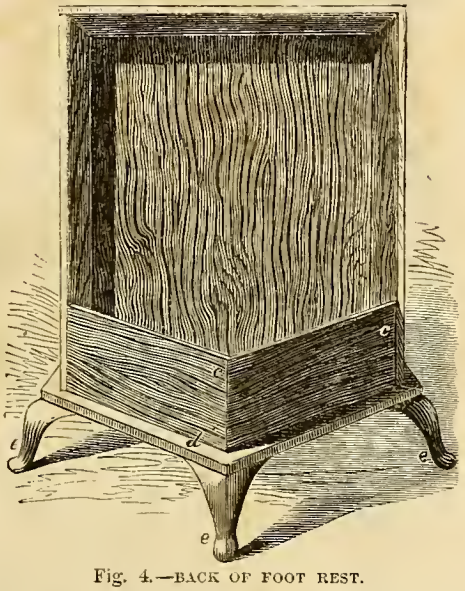


Fig. 4.—BACK OF FOOT REST.

Fig. 5.—FRONT OF FOOT REST.

A FOOT REST.—An old saleratus box 14½ by 17, by 17 inches, furnished the foundation for father's foot rest. These boxes are generally made stronger and smoother than ordinary dry goods boxes. I removed the top, cut the sides and one end down to 8½ inches, as in figure 3, and pointed the other end as at *a*, *b*, *a*, around which I nailed two small boards, *c*, *c*, (figure 4,) so as to form a box in which to keep the slippers. (A cover to this part would be an improvement, but I was not carpenter enough for that.) I nailed a second bottom or baseboard, 1½ inch projecting, to the rest when thus prepared, and screwed to the corners, feet 2½ inches in hight, *e*, *e*, *e*. These I purchased of a carpenter. They were stained to imitate black walnut. Then I carefully covered the whole with walnut figured wall paper, (except the front of figure, which had only a border of 1½ inches,) fastening the edges and corners securely, and being sure that no air bubbles were left under the paper. When dry, I gave it one thin coat of glue and three coats of varnish, after which it would have taken a skillful eye at a little distance to detect that it was not really walnut. In autumn I had put a new cover of reps upon the sitting-room lounge. A remnant was left from which I cut a piece 16½ by 14 inches. In the center of this I embroidered a medallion with initials, and tacked it over the front, as shown in the engraving (fig. 5), with upholsterer's gimp and white headed nails. Aunt Ann and father say it looks "just as boughten as can be," which is their highest term of praise. American men are noted for wanting their feet, while sitting, nearly as high as their head. This rest enables father to indulge in his favorite attitude without occupying an extra chair. He declares it a splendid affair for warming the feet. When not in use I keep it in the chimney corner, the pointed back fitting in so as to occupy but little room, and the front being very ornamental.

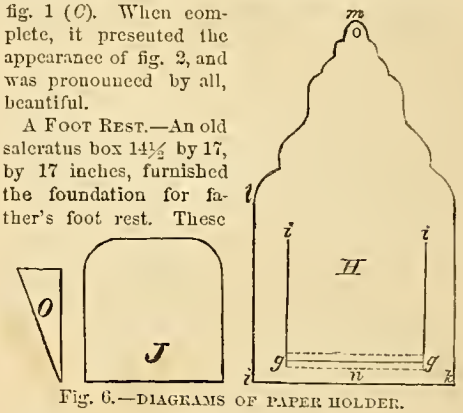


Fig. 6.—DIAGRAMS OF PAPER HOLDER.

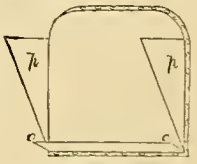


Fig 7.

PAPER HOLDER.—For the paper holder I procured two butternut boards the size of *H*, and *J*, figure 6. *H*, is 17 inches from *i*, to *k*, 16 inches from *i*, to *l*, 28 inches from *m*, to *n*. *J*, is 13 by 14 inches. *O*, is red kid, 13 inches long, and 4 inches wide at the top, where it is bound with narrow ribbon. There are two such pieces for the ends, and also a strip 13 inches long by 2 wide. After smoothing the boards with sand-paper I drew upon them the design, (figure 8). I stained the body of *H*, a rich brown, leaving the ornamental work of the original color; while on *J*, the corner figures and a wavy margin around the edge were stained, and the remainder of the board left in its natural state. To lighten the effect of the designs I painted a

Fig. 8.—PAPER HOLDER.

narrow band of black around their inner edges. Then varnished *J*, and immediately pressed upon the center, face downward, an engraving previously soaked in water, from which I carefully rubbed off the white back. When it became thin enough to show the picture through, I allowed it to dry, after which it was again wet and still more of the paper back rubbed off, until only a very thin film of paper remained, which became so transparent by varnishing as to allow the grain of the wood to show through, and seemed to have been engraved upon the board. Both *H* and *J* received four coats of varnish, which gave them a very high polish. The three pieces of kid were then tacked upon the sides and bottom of *J*, with gimp and white headed nails, the gimp and nails being carried around the top. Held with the back toward me, it now presented the appearance of fig. 7. With carpet tacks

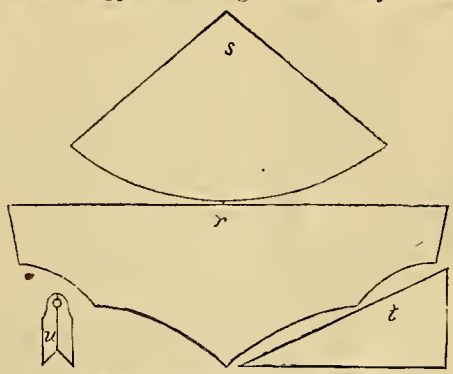


Fig. 9.—DIAGRAMS OF BRACKET.

I fastened *s*, o, upon the line *q*, *q*, (fig. 6,) in the manner shown by dots. When the pieces *p*, *p*, (fig. 7,) were brought up to *r*, *r*, (*H*, fig. 6,) this seam was left inside the holder. Gimp and white headed nails were used in fastening the kid to the lines *q*, *r*. This article was hung upon the wall by a large picture nail, and is for receiving newspapers.

A BRACKET.—Fig. 9 shows the parts of the bracket shelf, 13 by 17 inches, which I papered and varnished the same as foot rest; *t*, is one of the side pieces, 7 by 13 inches; *u*, a bit of tin, cut from an old tomato can, which I papered, varnished, and nailed over the junction of the side pieces, as a ring by which to hang the bracket, (fig. 10); *r*, (fig. 9) is embroidering canvas, 19 inches long, and 8 inches at the deepest point. There were also two other pieces of canvas, the same shape, but an inch larger each way than the side boards. In the center of each canvas, I embroidered a group of bright, autumn leaves, filling in the body with crystal beads, a bead in each stitch. Then tacked them over the side pieces, and around the front of the bracket, as in the engraving, hiding the tacks under a bead heading, and finishing off the lower edge of the curtain with a heavy fringe of the same.

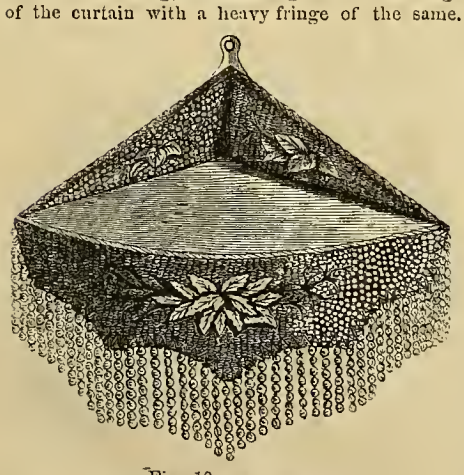
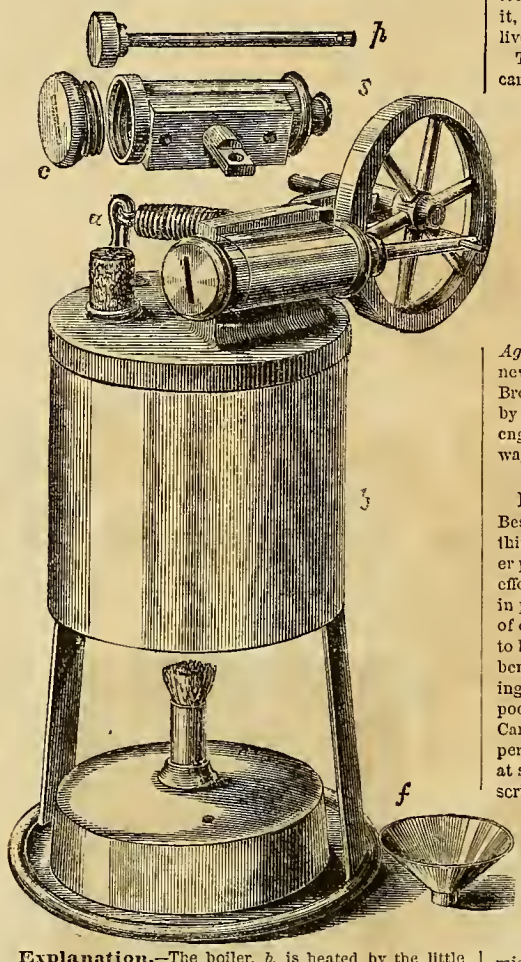


Fig. 10.—BRACKET.

When finished, this was far prettier than any of the brackets in the store, I had so coveted for sister. There is great satisfaction in having thus provided so many acceptable presents with so small an outlay of money. Perhaps these hints will help others to prepare gifts for friends at Christmas time.

BOYS & GIRLS' COLUMNS.



Explanation.—The boiler, *b*, is heated by the little alcoholic lamp underneath. The steam-chest, shown separately at *s*, is held in place by the spring, *a*, which allows it to shove off and let out the steam, if too great a pressure is applied, so that there can be no explosion. The screw cap, *c*, opens the steam-chest, or cylinder, for putting in the piston, *p*. The little funnel, *f*, is for putting water in the boiler, and alcohol in the lamp. A single ounce of alcohol will run the engine rapidly for hours. The whole engine packs in a box 4 inches high, and 2¾ inches in diameter.

Hurrah, Boys! A Real Steam-Engine for You!

All active boys are natural steam-engines, full of fire and pent-up steam. For forty years past, ever since *men* have been using steam-engines generally, the boys have always been eager to construct, beg, or buy some thing like a steam-engine—any kind of a thing—rude and rough, or otherwise, only so that it would GO—would *go* at all. How boys plan and work, and work and plan, with alternate hopes and fears, to get up something that will move by steam-power, *we* know by *experience*. Why, *we* would have walked a dozen or fifty miles, on hands and knees if necessary, if that would have made us the *bona-fide owner* of even the smallest actual steam-engine ever constructed or thought of! Ten to one, the best hat, coat, and boots (only boys did n't wear boots then) would have gone quickly to pay for such a treasure—for a steam-engine that would *go*—that would *turn*. (The *we*, here used, includes all the editors, and at least half of the grown-up boys among the million-and-a-half readers of *Hearth and Home* and *American Agriculturist*.)

Well, in ample time for our *second* boyhood, and just in the nick of time for the present boys (and some of the girls, too) here comes a neat, prim, little steam-engine, costing only a dollar—a real steam-engine, that goes like a top—goes by steam—has boiler, steam-chest, piston, balance-wheel, etc., and a perfect *safety*-valve, so that it can't burst—a genuine thing—and it costs *only* a dollar. A man came in, with cash in hand to pay us for advertising such a thing in our papers, and, thinking it a humbug, we bid him begone. But he would n't go until he showed the thing, and—it was the real thing. "Seeing is believing," when you have had said thing in your own hands, and tried and proved it. While we write, one of these engines sets on our table, run by our little 11-year-old, who can't be persuaded to go to bed; and it is buzzing and whirling away, its wheel turning five hundred or a thousand times a minute—so fast, that we can't begin to count the revolutions. A stick, held against its arms or spokes, buzzes like a fly. It is so small, that a large tumbler covers it all over, but yet it is perfect in all its parts. The grown-up boy, who writes this, has taken it all to pieces half a dozen times, looked into and through it, and there's no getting around the fact, that it is a real, live engine, and a fine one, too.

The boys must have this for Christmas. But enough can not be made by that time for one boy in a hundred.

Well, we must look out for *our* boys, any way, and when we go to the City in the morning, we shall order *two thousand* of the first that can be made—or more, if we can get them—and offer them as premiums right off, and give a chance to those boys who have the most pent-up steam—that is, the most "go-ahead" to get them—at least two thousand of them. *And here's our offer:*

As long as our supply lasts, and as long as we can get more, any one, sending two new subscribers to HEARTH AND HOME, at $3 a year each—the regular price—or three new subscribers for the *American Agriculturist*, at $1.50 a year each, shall have one of these new steam-engines *Free*. It can be got at our Office, 245 Broadway, or we will send it anywhere in the United States by mail, if 36 cents are provided to pay the postage. This engine is sold by Messrs. Colby Brothers & Co., 508 Broadway, New York, who are the exclusive General Agents.

Premiums for Boys and Girls!—Besides the Steam-Engine on this page, there are many things in the Publishers' General Premium List, on another page, which our young readers can secure with a little effort. Many hundreds of quite young boys and girls have, in past years, secured the Great Dictionaries, and a score of other articles. A good many people will subscribe just to help out a young person's premium list, and then be benefited themselves by taking the papers. Many a Sewing Machine has been secured for mother, or aunt, or a poor widow, by the efforts of one or more small lads. Canvassing teaches a boy business habits, and the art of persuasion. The writer of this paid part of his expenses at school and college by canvassing for newspaper subscribers, and the exercise was of great use in after life.

Running Against a Big Word.

When Willie, whom the writer well knows, was a *very* youngster, he was sent to school to "keep him out of mischief," as it was said. It would have been very much better to try to keep the mischief out of *him*, by filling his head and hands with something better. The school was kept by two French ladies, and the talking was mostly done in that language. Willie who could talk and think only in English, finding little to interest him after the novelty had passed, soon let out some of his mischief and got himself into trouble. "*Bad boy*," exclaimed one of the teachers; "Zu sall be puneeshed ver mooch—Zu sall be vip, and shut up in de bargain." Willie could understand the "vip," for the teacher had gone through the motions while making the threat; but he had run against a big word and was puzzled and not a little frightened at the idea of being shut up—"in the *bargain*." He thought rapidly that the "bargain" might be a dark closet, or an awful cellar, or some terrible box where he should be tormented, but presently, determined to know the worst, tremblingly asked "what does the 'bargain' mean?" It was too much for the teacher, who could not help smiling, and then Willie knew that present danger was past. Since that time, Willie has grown to be a man. He says that from that time he was encouraged, when he encountered big words, or those he could not understand, to find out their meaning. In this way he says he has learned that the words of blusterers and bullies, are usually not so very dangerous; they only mean that the man behind them is a coward and don't want people to know it; that men who use "big dictionary" words in ordinary conversation, are not often learned or wise; he says they always remind him of small stores with big signs, and we guess he is about right.

The Story-Teller.

BY "CARLETON."

I think that there is not a boy nor girl in the world that does not love to hear a good story. I remember the stories I heard in childhood, when I was a white haired boy sitting in my little chair in the chimney corner. It was a great chimney, and it had a big fireplace, and in the winter evenings there was always a bright fire blazing on the stone hearth. It was very pleasant to sit there and see the shadows dancing on the walls, to see the flames and sparks fly up the chimney, and hear the wind roaring in the old trees on the stormy nights. It was delightful to hear my father tell about the old times when the Indians were prowling through the woods, and to hear his stories of battles, of witches, and ghosts, of Sinbad the sailor, and of Aladdin and his wonderful lamp, and of the forty thieves who secreted themselves in oil

jars. I used to wonder what sort of jars they were, and little did I then think that I should ever visit the lands of the East and see such jars, and hear the same stories of the Arabian Nights Entertainments told on the banks of the Bosphorus.

Not many months ago I was in the Orient, and saw the story-tellers of the East with crowds around them listening to their marvelous tales—the same that gave me such pleasure when I was a boy—which have been told at thousands of firesides in our own country, and which, for hundreds of years have been rehearsed over and over again in the cafes of Constantinople and Damascus, in their feet and hands at the fountain. Then they sit cross-legged upon the floor and smoke their long-stemmed pipes. Some of them use the *Nagheli*—which has a flexible tube several feet in length, attached to a glass, shaped like a decanter, partly filled with water perfumed with the otto of roses, through which they draw the smoke, sucking it through a tube which has an amber mouthpiece. The air causes the water to bubble, and when there are fifty or a hundred *naghelies* going at once in a cafe, there is a constant bubbling.

Servants with red caps (or fezes, as they are called) on their heads, and long, black silk tassels dangling down

THE STORY-TELLER.

the valley of the Euphrates, and in the tents of the Bedouins of the desert, and always to gratified listeners.

The people of the East delight in stories. They do not have many books, and there are few newspapers or printing presses. They have no Lyceum lectures, nor public discussions of any questions. They obtain their news from travelers and story-tellers who go from town to town, and from cafe to cafe. The story-teller of the Orient is an important personage. It is his profession to tell stories. He earns his living in that way. If he is a good story-teller, if he has a pleasant voice, and if he is lively and interesting, he becomes popular, and is treated with great courtesy and respect, and quite likely becomes a rich man.

A cafe is a place where the people of the Orient refresh themselves when weary. It is not quite like our restaurants, and not at all like a lager-beer saloon. You see no small pine tables covered with mugs, no sanded floors, nor spittoons, nor tobacco juice; no old hair-cloth sofas nor rickety chairs—no bar with casks of gin and whiskey behind it; but you will find a pleasant apartment, with a clean swept floor, covered with mats woven with threads of silver and gold. The room is lofty, and the ceiling gorgeous with golden stars; vines are twining round the pillars supporting the massive roof. Flowers bloom and fountains send up their silvery spray in the adjoining court. In such a place the Turks and Arabs of the eastern cities assemble to refresh themselves when their work for the day is over.

The first thing done when they enter a cafe, is to wash their backs, pass to and fro amid the throng of cross-legged sitters, with silver trays, serving them with figs, oranges, grapes, melons, dates, pineapples, sweetmeats, and confectionary, and tiny cups of thick, black coffee—sweet, and very delicious, after one learns to like it.

When the cafe is well filled, the story-teller enters, wearing a blue or crimson satin robe with a sash, yellow trowsers, big enough for meal bags, red morocco slippers, and a white turban, and taking his seat on the rostrum, commences his story; just as likely as not the hearers may have listened to it a hundred times, but if he tells it well they are never weary of hearing it. It may be about the "Forty Thieves," or about the "Spirit that was shut up in a bottle;" it must be a marvelous story, or there must be some wit about it, or it must have a moral, and be told with a great deal of spirit, energy, and action, to be acceptable. When the teller gets along to an interesting part, an attendant goes through the crowd to take whatever the listeners are disposed to give. If he has succeeded in pleasing them—if it has been a story about the bravery of a hero in battle, or if it has been a tender love affair, if it has excited them, they toss in the piasters (small copper coins) with a liberal hand, and, thus encouraged, he becomes more eloquent and energetic, and the listeners stroke their beards again and again, to express their pleasure at his effort.

When I was in Damascus I saw the story-tellers in the beautiful gardens of that city, watered by the Abana and Pharpar rivers that we read about in the Bible. The gardens are filled with flowers and are shaded by groves of orange, almond, and pomegranate trees. The almond-trees were in blossom and their pure white flowers filled the air with fragrance. The orange-trees were loaded with golden fruit, and beneath them, suspended from the branches, were hundreds of beautiful lamps—red, white, blue, green, and yellow—casting their varying lights, with all the hues of the rainbow, upon the enchanting scene. The smokers sat on their costly carpets and listened to the story-teller, and seemed well pleased with what he was saying.

One day when I was on the Bosphorus, I stepped on board a steamer and sailed up the beautiful river from Constantinople, towards the Black Sea. The steamer passed stately palaces standing on the shore, plowed its way through innumerable boats, until at last it brought us to a little village called Bebec, where there is an old house which was built by one of the Grand Viziers of the Sultan. It was curiously constructed; the ceilings were gorgeously painted, and the window sashes curiously carved. The Grand Vizier had an eventful life, and when I heard about his adventures, I thought them almost equal to any of the stories that I used to hear in childhood; and I dare say that they have often been rehearsed by the story-tellers of the East to their admiring audiences, and I am sure that you will like to hear about him.

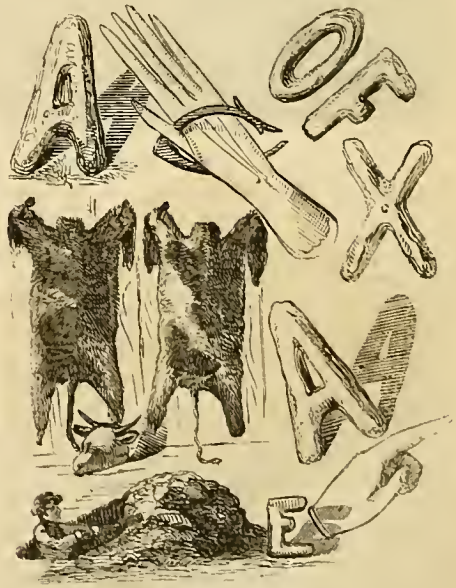
Years ago—some time in the last century—there was a little shop for the sale of bread in Stamboul, (a part of Constantinople), kept by a young Greek named Johannes. Opposite the bread shop a young Turk, named Ibraham, kept pipes and tobacco. Though of different nationalities and religions, a warm friendship—an affection like that between David and Jonathan, sprung up between the two. One day the Pasha of Bagdad came to do homage to the Sublime Porte, and Ibraham made the acquaintance of some one in the suite, who had wonderful stories to relate of Eastern lands. Love for adventure took possession of Ibraham, and he put up the shutters of his shop, saying to Johannes that he was going to try his luck in the world. It was a sad parting, but Ibraham had pluck and resolution. "I mean to be somebody," said he, "but whatever I am I never shall forget you, Johannes, and I shall always be your friend."

It would require much time to tell of all his adventures—how he became a follower in the train of the Pasha; of his arrival at Bagdad; how he became pipe-bearer to the Pasha; then something else; something better; working his way up; bettering his fortunes through the years; holding the position of secretary, chief officer, and at last, himself a Pasha; Governor of Bagdad; then called to Stamboul, and made Grand Vizier,—the highest office in the gift of the Sultan.

All these years Johannes was selling bread in the bazaar,—a steady, industrious man, with a wife and children. One day a company of soldiers appeared in front of the shop and told him he must go to the palace of the Grand Vizier. In those days men were tied up in sacks and tossed into the Bosphorus, just as you would drown a cat, or their heads were chopped off without ceremony on a block, which you may still see at the entrance of

[*Concluded on next page.*]

New Puzzles to be Answered.



No. 397. *Illustrated Rebus.*—Something that ought never to be found true.

Charade.—My first is a Friar of orders gray,
My next did Bluebeard's wife betray,
My whole is an animal resembling man,
Now tell me, dear guesser, my name if you can.

[COPYRIGHT SECURED.]

"FINDING THE CHAPTER."—*Drawn and Engraved for the American Agriculturist.*

the "Gate of Happiness," in Stamboul. The poor bread seller begged for mercy, protested that he was innocent of crime, asked what he had done, but to no purpose. He must go to the Grand Vizier. Trembling, with sinking heart, without bidding adieu to wife or children, amid the lamentations of all the shopmen, he was taken away. Hours of agony he had in the court of the palace, awaiting his fate. At last he was taken before the Grand Vizier; he fell upon the floor and plead for life. Then the Grand Vizier approaching him raised him from the floor, saying: "I am Ibraham, your friend. I have heard of you, that you are an honest man, and now I want you to be my banker." Let imagination fill up what I have not space for narrating; the surprise of Johannes; the talk between the two; Johannes protesting that he could not fill the place; the Grand Vizier saying: "When you get into trouble come to me and never say a word to any body else;" how Johannes went out from the palace in a robe of purple, wearing a magnificent green turban, seated on a white horse with trappings of gold; guards around him; the people bowing before him, going down to his house—to his weeping wife and children who thought him dead; how he prospered in his new position, dealing honestly and fairly; how he came to his dying bed full of years, and, like Jacob, calling his sons to receive his benediction, saying, "I never have given nor taken a bribe, and I shall die in peace, while every other servant of the Grand Vizier who has taken bribes, has found death by the sword or bow-string. My sons, remember my words—never give nor take a bribe."

I have only given you an outline of the story; but sitting there in the house that Johannes built, and where he lived and died, looking at the curiously carved woodwork, and the small panes of glass in the windows, and being assured that the story was true, I thought it quite as good and almost as romantic as any thing in the Arabian Nights.

You will see by the accompanying engraving that the story-teller is getting quite excited. His countenance is animated, he is gesticulating with his hands, and the listeners are getting interested. The fellow who collects the money has seized the opportunity, and is passing through the crowd to take whatever the people have a mind to give, just as the Italian organ grinders with their monkeys do in our own streets.

Sometimes when the story is tragic and full of horror, or when the teller wants to excite his hearers to a pitch of frenzy he beats his breast and tears his hair, and utters such wild cries that the old Turks are wrought up to a high degree of excitement, just as audiences are convulsed with laughter, or are melted to tears, or roused to do daring deeds by the great dramatists and orators of our own country.—Take him all in all, the Eastern story-teller is an interesting character; for he not only amuses but instructs the people, and many of the stories, like the one I have given, have an excellent moral, which I hope we shall all keep in mind.

Finding the Chapter.

It will not be hard for any of our boys and girls to understand this picture. It tells its story at a glance. Do you remember the first time you went to church? Did you laugh, or cry, or "talk in meeting," or do any thing else that made people smile and that has been told you very often since? Little Miss Lively is at church with her father and brother. Don't you think this is the first time she has ever been? She is quiet enough just now. The apple in her hand very likely has something to do with it, though the finger at her mouth tells us that she hardly wants to wait longer before eating it. The father is glad to have his little daughter with him, and the bright young boy at his side seems interested in the service. The good man's eyes are dim, but he means to "find the chapter," and to keep the place in the Good Book where the minister is reading. It is a pleasant picture, and one that will remind many of our readers of similar scenes in which they themselves have acted.

HARVEY FISK. A. S. HATCH.

OFFICE OF FISK & HATCH.
Bankers and Dealers in Government Securities,
No 5 NASSAU-ST., NEW-YORK, Nov. 5, 1870.

THE FUNDING OF UNITED STATES FIVE-TWENTIES into a first-class security, paying the same rate of interest (six per cent. gold), and which cannot be called in under 25 years without the consent of the holder, may now be effected at a clear profit of about *twenty per cent.* by exchanging them for the FIRST MORTGAGE BONDS OF THE CENTRAL PACIFIC RAILROAD CO.

The advantage of the exchange is shown thus:

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Send for Sample. See advertisement.

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Makes the most wholesome and best of BREAD, BISCUIT, CAKES, &c. Unlike some other yeast, it contains no POISON to create DYSPEPSIA, and the bread may therefore be eaten hot without detriment. Resolving itself into Phosphate of Lime and soda, it prevents RICKETS, CHOLERA, and decay of TEETH, and promotes the growth of Muscle and Bone. In "*raising*" the dough, it does not, like other yeast, decompose the flour, but adds nutriment to the bread, and otherwise improves it in quality and quantity. Each package contains full directions for use. Send for pamphlet, supplied gratis. Ask your Grocer for "Horsford's Bread Preparation." WILSON, LOCKWOOD, EVERETT & CO., Wholesale Agents, 201 Fulton St., New York.

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Latest, cheapest, and best for family use. Knits every thing, and gives universal satisfaction. Company invite any test or comparison. Price, $30 plain; $35 silver-plated; $40 gold-plated. Agents wanted. Address NEW-HAVEN FAMILY KNITTING MACHINE CO., New Haven, Conn.

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OF INTEREST TO ALL.—Read WOOD & HOLBROOK'S advertisement on another page.

VICK'S Floral Guide for 1871.

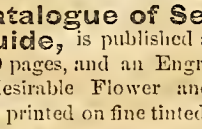
THE FIRST EDITION OF ONE HUNDRED AND FIFTY THOUSAND copies of **Vick's Illustrated Catalogue of Seeds and Floral Guide,** is published and ready to send out—100 pages, and an Engraving of almost every desirable Flower and Vegetable. It is elegantly printed on fine tinted paper, illustrated with Three Hundred fine Wood Engravings and Two beautiful

COLORED PLATES.

The most beautiful and most instructive Floral Guide published.

Sent free to all my customers of 1870, as rapidly as possible, without application. Sent, to all others who order them, for **Ten Cents,** which is not half the cost. Address,

JAMES VICK,
Rochester, N. Y.



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Awarded **75 Gold and Silver Medals** and other highest premiums; recommended by **1000 Musicians** (see TESTIMONIAL CIRCULAR) as **THE BEST.** New styles this season, with patented improvements. Prices reduced, $50, $65, $100, $125, $150, to $1,000 each.

NEW CATALOGUE, with 23 elegant ILLUSTRATIONS FROM PHOTOGRAPHS, and full descriptions, sent free Address **MASON & HAMLIN ORGAN CO.,** 596 Broadway, New York; or 154 Tremont Street, Boston.

Amusette, or Portable Family Billiards.

Can be placed upon any Table. It takes but a few minutes to put it up or take it down.
☞ Every family should have it

COMPLETE SET, including BALLS & CUES.

Sent by Express to any address on receipt of price.
Price, $6.00.—Send for Circular. E. I. HORSMAN,
Sole Agent for the U. S. & Canadas, 100 William St., N. Y.

THE

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WILL SEW EVERYTHING NEEDED IN A FAMILY, FROM THE HEAVIEST TO THE LIGHTEST FABRIC. IT DOES MORE WORK, AND MORE KINDS OF WORK, THAN ANY OTHER MACHINE.

MAKE YOUR OWN SOAP

One Pound of Crampton's Imperial Laundry Soap will make twelve quarts of Handsome Soft Soap. Ask your Grocer for it and Try it. CRAMPTON BROTHERS, 84 Front St., New York.

$25.00 A WEEK.

Young men wanted as salesmen for a new Adding Machine. Business light and HONORABLE. No *humbug.* Address (with stamp) E. H. WALKER, 34 Park Row, New York.

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One of the oldest Family Journals in the West, is about commencing its **Twenty-eighth Volume.** It is conceded by its Seventy Thousand Patrons to be one of the

Handsomest, Cheapest and Best
NEWSPAPERS IN THE UNION,

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A few reasons why everybody in want of a first-rate Family Journal should subscribe for the Weekly Times:

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—TO THE—
Patrons of the Cincinnati Weekly Times.

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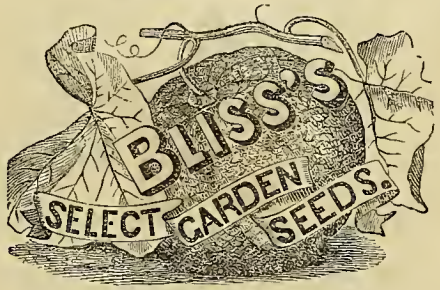

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Nov. 5, 1870.

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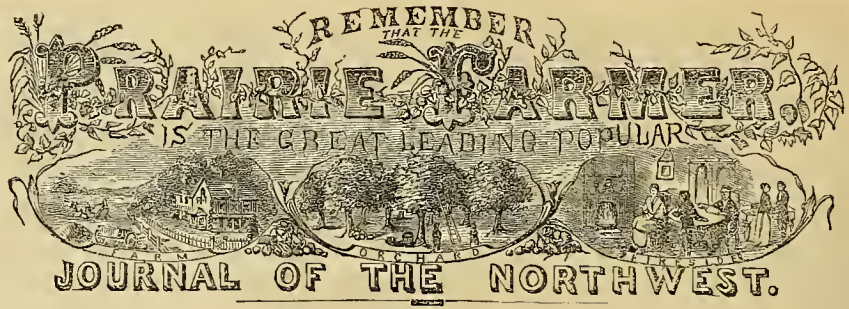
OF INTEREST TO ALL.—Read WOOD & HOLBROOK'S advertisement on another page.



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We have a large and well-grown stock of vines of

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Remember that the BLADE is a truly **National Newspaper**—not a paper for either the East, the West, the North or the South alone, but for **The Whole Country.**

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ORANGE JUDD & CO., Publishers, 245 Broadway, N. Y. City.

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Many persons canvass all the time, *as a business*, and sell the premium articles received, and thus make large wages. Some Ladies, now canvassing, have each cleared from **$500** to **$3,000** a year. Many others have cleared $50 to $300, by devoting but little time to it. Many *Clergymen* have collected names among their parishioners, and secured the Cyclopedia, Melodeons, Sewing Machines, etc., etc., in a brief time. Many *Boys* and *Girls* have secured the Great Dictionary, etc., etc. .....This has all been done with only one paper. As we now include both papers in the list, the canvasser can use both.

One or more clubs can be raised at *every* Post-Office. There are plenty of people who *ought* to take the papers, and *will* take them, if the papers are shown them and they are informed of their value..... **YOU, READER,** may just as well attend to this at your post-office, as any one else, and get the premium. **Try it.** A little perseverance will accomplish it.

Explanatory Notes.

Read and carefully Note the following Items: (*a*) All subscribers sent by one person count, though from one or a dozen different Post-offices. But....(*b*) Tell us with each name or list of names sent, that it is for a premium....(*c*) Send the names as fast as obtained, that the subscribers may begin to receive the paper at once. You can have any time, from one to six months, to fill up your list....(*d*) Send the exact money with each list of names, so that there may be no confusion of money accounts....(*e*) Old and new subscribers all count in premium clubs, but a portion, at least, should be new names; it is partly to get these that we offer premiums to canvassers.....(*f*) Specimen Numbers, Cards, and Show-bills, will be supplied free as needed by canvassers, but they should be used carefully and economically, as they are very costly....(*g*) Remit money in Checks on New-York Banks or Bankers, payable to order of Orange Judd & Co., or send Post-office Money Orders. If neither of these is obtainable, Register Money Letters, affixing stamps both for the postage and registry; put in the money and seal the letter in the presence of the Postmaster, and take his receipt for it. Money sent in any of the above ways is at our risk.

[In the following table is given the price of each article, and the number of subscribers required to get it *free*, at the regular rates, $1.50 and $3.00 a year, for the two papers; also at the club rates of $1 and $2.50.]

N. B.—*In all Premium Clubs for either paper, TWO copies of American Agriculturist at $1.50 each, and ONE copy of Hearth and Home at $3.00, will count exactly the same. So also* **two** *copies of American Agriculturist at $1 each, and* **one** *copy of Hearth and Home at $2.50, will count exactly the same. In this way Premium Clubs can be made up from the right-hand, or from the left-hand columns below, or partly of both, only excepting Premium No. 39.*

Table of Premiums and Terms, For American Agriculturist, and for Hearth and Home, for the Year 1871.

Open to all—No Competition.

No.	Names of Premium Articles.			Price of Premiums.	American Agriculturist. Number of Subscribers required at $1.50	American Agriculturist. Number of Subscribers required at $1.	Or Hearth and Home. Number of Subscribers required at $3.00	Or Hearth and Home. Number of Subscribers required at $2.50
1	Knives and Forks	(Patterson Bros.)		$14 00	21	70	11	35
2	Knives and Forks	(do.	do.)	$18 50	27	90	14	45
3	Knives and Forks	(do.	do.)	$22 00	33	110	17	55
4	Knives and Forks	(do.	do.)	$25 50	39	124	20	62
5	Carver and Fork	(do.	do.)	$5 00	13	37	7	19
6	Fluted Steel	(do.	do.)	$2 50	6	25	3	13
7	French Cook's Knife, Fork, and Steel			$8 00	8	30	4	15
8	Pocket Knife	(Smith & Clark)		$1 50	4		2	
9	Pocket Knife	(do.	do.)	$2 00	5	22	3	11
10	Pocket Knife	(do.	do.)	$2 50	6	25	3	13
11	Ladies' Pocket Knife	(do.	do.)	$2 00	5	22	3	11
12	Tea Set	(Hart's best Silver-plated		$50 00	66	225	33	113
13	Casters and Fruit Basket	(do.	do.)	$30 00	44	140	22	70
14	Cake Basket	(do.	do.)	$12 00	19	65	10	33
15	Revolving Butter Cooler	(do.	do.)	$8 00	16	52	8	26
16	Ice or Water Pitcher	(do.	do.)	$18 00	27	90	14	45
17	One Dozen Teaspoons	(do.	do.)	$6 00	15	45	8	28
18	One Dozen Table Spoons	(do.	do.)	$12 00	19	65	10	33
19	One Dozen Table Forks	(do.	do.)	$12 00	19	65	10	33
20	Child's Cup	(do.	do.)	$2 75	7	27	4	14
21	Gold Pen, Sil. Case,	(George F. Hawkes)		$3 25	8	30	4	15
22	Gold Pen and Silver Case,	(do.	do.)	$5 00	12	37	6	19
23	Gold Pen, Handle gold-tipped,	(do.	do.)	$6 00	13	37	7	19
24	Ladies' Gold Pen and Rubber Case	(do.	do.)	$6 00	13	37	7	19
25	Lozo Pendulum Board			$10 00	18	58	9	29
26	Amusette			$6 00	13	37	7	19
27	Garden Seeds for a Family (40 kinds),			$5 00	12	33	6	17
28	Flower Seeds for a Family (100 kinds),			$5 00	12	33	6	17
29	Garden Seeds & Flower Bulbs	(Selection)		$2 00	5	22	3	11
30	Nursery Stock	(any kinds desired)		$20 00	30	97	15	49
31	Set of Field Croquet			$8 00	16	52	8	26
32	Sewing Machine	(Grover & Baker)		$55 00	60	240	30	120
33	Sewing Machine	(Florence)		$63 00	70	275	35	138
34	Sewing Machine	(Willcox & Gibbs)		$55 00	60	240	30	120
35	Washing Machine	(Doty's)		$14 00	21	70	11	35
36	Clothes Wringer	(Best—Universal)		$10 00	18	58	9	29
37	Melodeon, 4-octave	(G. A. Prince & Co.'s)		$67 00	78	295	39	148
38	Melodeon, 5-octave	(do. do.)		$112 00	128	400	64	200
39	Piano, Splendid 7-oct.	(Steinway & Sons)		$625 00	520	1950	260	520
40	Silver Watch	(American Watch Co.)		$40 00	50	150	55	55
41	Ladies' Fine Gold Watch	(Am. Watch Co.)		$100 00	110	550	55	155
42	Frank Wesson's Breech-loading Rifle			$70 00	44	140	22	70
43	Breech-loading Pocket Rifle			$16 00	24	80	12	40
44	Maynard's Combination Gun			$55 00	60	240	30	120
45	Double Bbl. Gun,	(Cooper, Harris & H.)		$20 00	46	170	23	75
46	Tool Chest	(Patterson Bros.)		$45 00	60	190	30	95
47	Case of Mathematical Instruments			$9 00	18	75	9	28
48	Case of Mathematical Instruments			$15 00	22	75	11	38
49	Charles Pratt's Astral Oil	(1 can, 5 Gal.)		$4 00	9	32	5	16
50	Barometer	(Woodruff's Mercurial)		$10 00	18	58	9	29
51	Barometer	(Woodruff's Mercurial)		$15 00	22	75	11	38
52	Buckeye Harvester Mower			$125 00	150	420	75	225
53	Patent Cylinder Plow	(E. H. Allen & Co.)		$18 00	27	90	14	45
54	Collins & Co.'s Cast Cast-Steel Plow			$25 00	38	120	19	60
55	Hand Cultivator and Weeder	(Comstock)		$9 00	17	54	9	27
56	American Submerged Pump			$15 00	19	65	10	33
57	Pump and Sprinkler	(Page's)		$5 00	13	37	7	19
58	Family Scales	(Fairbanks' & Co.)		$14 00	21	70	11	35
59	Building Blocks	(Crandall)		$2 00	6	20	3	10
60	Pocket Lanterns	(One Dozen)		$9 00	17	54	9	27
61	New American Cyclopædia	(Appleton's)		$80 00	96	335	48	163
62	Worcester's Great Illustrated Dictionary			$10 00	18	58	9	29
63	Eumelan Grape Vine,	No. 1		$1 00	3	....	2	....
64	Eumelan Grape Vine,	Extra		$2 00	5	....	3	....
65	Double Harpoon Horse Hay-Fork			$10 00	18	58	9	29
66	Any Back Volume Agriculturist			$1 75	....	29	....	10
67	Any Two Back Volumes		do.	$3 50	....	59	....	15
68	Any Three	do.	do.	$5 25	13	37	7	19
69	Any Four	do.	do.	$7 00	15	54	8	24
70	Any Five	do.	do.	$8 75	17	54	9	27
71	Any Six	do.	do.	$10 50	19	61	10	32
72	Any Seven	do.	do.	$12 25	21	68	11	34
73	Any Eight	do.	do.	$14 00	23	74	12	37
74	Any Nine	do.	do.	$15 75	25	80	13	40
	—(Each add'l Volume at same rate)				....	....	....	....
76	Four teen Vols. XVI to XXIX			$24 50	31	110	17	55
77	Any Back Volume Agriculturist			$2 50	....	24	....	12
78	Any Two Back Volumes		do.	$5 00	....	36	....	18
79	Any Three	do.	do.	$7 50	16	48	8	24
80	And Four	do.	do.	$10 00	18	60	9	30
81	Any Five	do.	do.	$12 50	21	71	11	36
82	Any Six	do.	do.	$15 00	21	82	12	41
83	Any Seven	do.	do.	$17 50	27	92	14	46
84	Any Eight	do.	do.	$20 00	30	102	15	51
85	Any Nine	do.	do.	$22 50	33	110	17	55
	—(Each add'l Volume at same rate)			$25 00	....	....	....	....
87	Four teen Vols. XVI to XXIX				47	148	24	72
88	A $10 Library	(Your Choice)		$10 00	18	58	9	29
89	A $15 Library		do.	$15 00	24	85	12	43
90	A $20 Library		do.	$20 00	31	106	16	53
91	A $25 Library		do.	$25 00	38	125	19	63
92	A $30 Library		do.	$30 00	44	141	22	72
93	A $35 Library		do.	$35 00	50	162	25	81
94	A $40 Library		do.	$40 00	56	177	28	89
95	A $45 Library		do.	$45 00	62	192	31	96
96	A $50 Library		do.	$50 00	68	206	34	104
97	A $60 Library		do.	$60 00	80	237	40	119
98	A $75 Library		do.	$75 00	100	282	50	141
99	A $100 Library		do.	$100 00	125	360	63	180
100	A Choice of Good Books.	(See next page.)			....	....	....	....

Unbound, Post-paid. Bound, Post-paid. All sent paid through by Mail or Express.

☞ *Every Premium article is* **new** *and of the very* **best** *manufacture. No charge is made for packing or boxing any article in our Premium List. The Premiums,* **Nos. 8 to 11, 21 to 24, 27, 28, 29, 47, 48, 63, 64,** *and* **66 to 100** *inclusive, will each be delivered FREE of all charges, by mail or express (at the Post-office or express office nearest recipient), to any place in the United States or Territories.—The other articles cost the recipient only the freight after leaving the manufactory of each, by any conveyance that may be specified.*

[SEE NEXT PAGE.]

Full Descriptions

of all the Premiums, are given in our October number, which will be mailed *free* to all applicants. Read over the descriptions, and you will find many desirable articles—indeed all are desirable. We have room in this paper only for the following DESCRIPTIVE NOTES:

Nos. 8, 9, 10, 11—Pocket Knives.—HERE'S FOR THE **Boys** AND **Girls**!—These Premiums are among the most pleasing and useful that we have ever offered. Every boy, and girl, too, wants a pocket knife. We give them an opportunity to obtain a most valuable one for merely a little effort. These knives are made by **Messrs. Smith & Clark, Bronxville, N. Y.**, whose work is equal to any done in this country or Europe. No. 8 is a neat, substantial Knife, with three blades and buck-horn handle. No. 9 is a still finer article, with four blades and buck-horn handle. No. 10 is an elegant Knife, with four blades and shell handle. No. 11 is a Lady's Pocket Knife, a beautiful article, with four blades and shell handle.

No. 12.—A Tea Set.—This premium has given the greatest satisfaction, for the last four years. There are six pieces; viz. *A Coffee-Pot*, two *Teapots*, a *Creamer*, *Sugar* and *Slop Bowl*—all of beautiful, uniform pattern, new style, with raised and embossed figure work. They are not the common silver-*washed* articles, but the best triple plate, the foundation being white metal, so as not to show, even when the heavy silver coating may chance to be worn off in any spot by long, hard usage.—These sets are made by the **Lucius Hart Manufacturing Co., of Nos. 4 and 6 Burling Slip, New York City,** and are warranted by them to be of the best triple plate; and each piece bears their stamp. Mr. Hart, "the veteran Sunday-school man," has been in the same place and business for nearly a quarter of a century. We have known him and his work for many years, and take pleasure in commending and guaranteeing its value to be as represented. The amount of silver upon plated ware depends wholly upon the will and integrity of the manufacturer. We could give nearly as good-*looking* plated ware for less than half the money.

No. 13.—Casters and Fruit or Cake Basket Combined.—This is a new pattern, both novel and beautiful. It can be used as large, showy Casters, with six cut-glass bottles, or be instantly changed into complete Casters, with Call-Bell, and a separate Cake or Fruit Basket, with a colored glass dish inside. Every one receiving it will be delighted. It is from the same makers as No. 12, of same metal, plating, etc.

No. 14.—Cake Basket.—A new pattern, canoe shaped, nicely chased and very taking. It is from the same makers and of equally good quality as the two preceding premiums; is a *beautiful* table ornament.

No. 15.—Revolving Butter Cooler.—This is a really good and useful article. It is so arranged that a very little ice in the holder under the plate will keep butter cool and fresh for a long time on the table, even in the hottest weather. The cover revolves underneath the plate for use, and over for protection. The whole is in four pieces, which can all be taken apart for washing. From same house as No. 12.

No. 20.—Child's Cup.—A beautiful gift for the little *one-year-old*. It is made by the **Lucius Hart Manufacturing Co.** Triple-plated on the outside and gilded on the inside. It never breaks, and will last for many years—indeed, be a life keep-sake.

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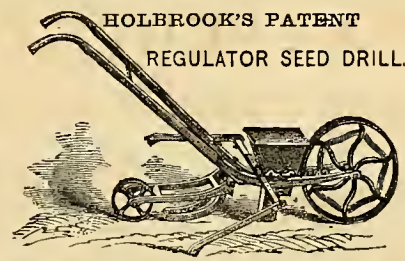

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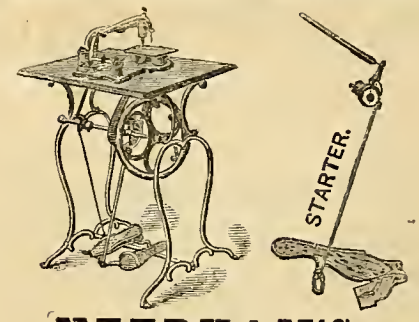

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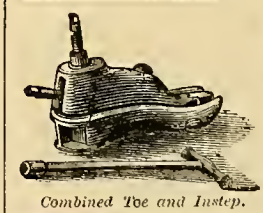

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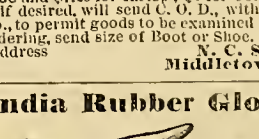

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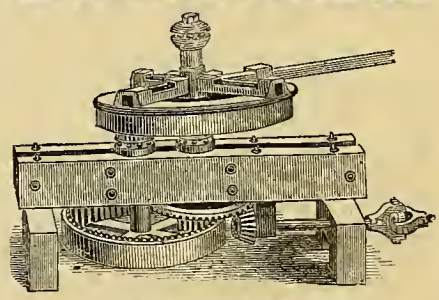

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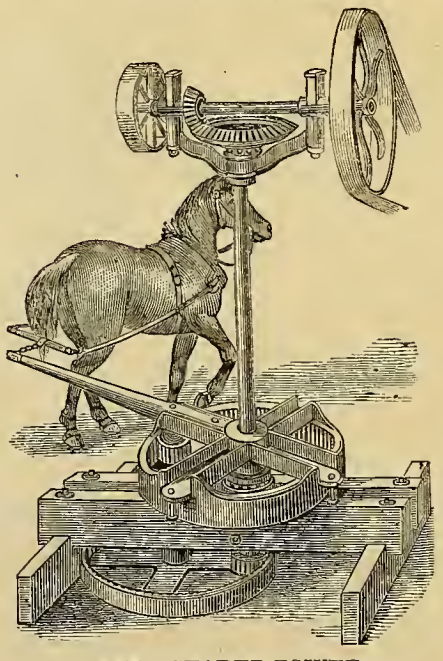

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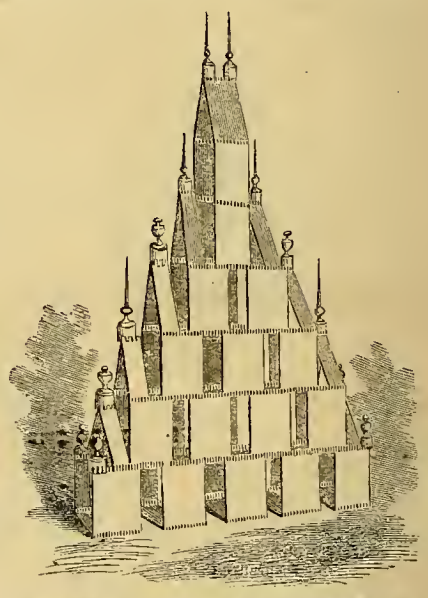

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